

29/5/2 (Item 2 from file: 347)

DI ALOC(R) File 347: JAPI O

(c) 2008 JPO & JAPI O. All rts. reserv.

03204441 \*\*Image available\*\*

OPTICAL INFORMATION RECORDING MEDIUM AND ITS PRODUCTION

PUB. NO.: 02-179941 [JP 2179941 A]

PUBLISHED: July 12, 1990 (19900712)

INVENTOR(s): ICHI MURA EIJI RO

NAKAMU SHI GEKI

APPLICANT(s): KURARAY CO LTD [000108] (A Japanese Company or Corporation),  
JP (Japan)

APPL. NO.: 63-335443 [JP 88335443]

FILED: December 29, 1988 (19881229)

INTL CLASS: [5] G11B-007/24; G11B-007/26; G11B-023/40

JAPI O CLASS: 42.5 (ELECTRONICS -- Equipment)

JAPI O KEYWORD: R002 (LASERS); R009 (HOLOGRAPHY); R044 (CHEMISTRY --  
Photosensitive Resins); R102 (APPLIED ELECTRONICS -- Video  
Disk Recorders, VDR); R125 (CHEMISTRY -- Polycarbonate  
Resins)

JOURNAL: Section: P, Section No. 1112, Vol. 14, No. 452, Pg. 50,  
September 27, 1990 (19900927)

#### ABSTRACT

PURPOSE: To enable visual check of a specified pattern on the **surface** of a recording medium without causing any influence of the formed pattern on recording/reproducing characteristics by making difference in intensity or color of reflected or **diffracted light** in the area corresponding to the pattern from other area.

CONSTITUTION: If the fine signal patterns 5 in a **macroscopic** area 7 corresponding to the prescribed pattern 2 are made different in either shape or size from other signal patterns, diffraction effect in the area 7 differs from that in the other area to give different intensity or color of reflected or **diffracted light** from **light** in other area. If a photosensitive resin is provided on this **substrate** and exposed to light, first to form uneven **surface** state and second to form the specified pattern, the projections or recessions in the pattern area differ from those in other area in shape or size. By this method, the obtained optical information recording medium can have patterns of letters or images which can be visually checked without causing any trouble on recording/reproducing by an optical head.

29/5, K/4 (Item 1 from file: 350)

DI ALOC(R) File 350: Derwent WPI X

(c) 2008 Thomson Reuters. All rts. reserv.

0013824449 - Drawing available

WPI ACC NO: 2003-902970/200382

XRPX Acc No: N2003-721134

Security element with micro and macro structures has part(s) with  
diffraction structure formed by superimposition of function describing  
macroscopic structure with microscopically fine relief profile

Patent Assignee: OVD KINEGRAM AG (OVDK-N)

Inventor: SCHILLING A; STAUB R; TOMPKIN W R

Patent Family (10 patents, 102 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	
WO 2003084764	A2	20031016	WO 2003EP3482	A	20030403	200382	B
DE 10216562	C1	20031211	DE 10216562	A	20020405	200401	E
AU 2003219126	A1	20031020	AU 2003219126	A	20030403	200436	E
EP 1492679	A2	20050105	EP 2003714917	A	20030403	200504	E
			WO 2003EP3482	A	20030403		
US 20050082819	A1	20050421	WO 2003EP3482	A	20030403	200531	E
			US 2004510395	A	20041004		
KR 2005020771	A	20050304	KR 2004715640	A	20041001	200548	E
JP 2005528633	W	20050922	JP 2003581986	A	20030403	200563	E
			WO 2003EP3482	A	20030403		
CN 1646331	A	20050727	CN 2003807932	A	20030403	200577	E
AU 2003219126	A8	20051027	AU 2003219126	A	20030403	200624	E
RU 2311304	C2	20071127	WO 2003EP3482	A	20030403	200777	E

RU 2004132228 A 20030403

Priority Applications (no., kind, date): DE 10216562 A 20020405

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2003084764	A2	DE	33	13	
National Designated States, Original: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
Regional Designated States, Original: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW					
AU 2003219126	A1	EN			Based on CPI patent WO 2003084764
EP 1492679	A2	DE			PCT Application WO 2003EP3482
Based on CPI patent WO 2003084764					
Regional Designated States, Original: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
US 20050082819	A1	EN			PCT Application WO 2003EP3482
JP 2005528633	W	JA	26		PCT Application WO 2003EP3482
Based on CPI patent WO 2003084764					
AU 2003219126	A8	EN			Based on CPI patent WO 2003084764
RU 2311304	C2	RU			PCT Application WO 2003EP3482
Based on CPI patent WO 2003084764					

#### Alerting Abstract WO A2

**NOVELTY** - The device has a compound **layer** with microscopically fine optically effective structures of a pattern between two **layers** formed into sub-areas of a **security** marker in a plane of the pattern in a reflective boundary **surface** between the **layers**. At least one part with dimensions larger than 0.4 mm has a diffraction structure formed by superimposing a function describing a **macroscopic** structure with a microscopically fine **relief** profile.

**DESCRIPTION** - The **security** element (2) has a compound **layer** (1) with microscopically fine optically effective structures (9) of a pattern embedded between two **layers** (5, 6) and formed into sub-areas of a **security** marker in a plane of the pattern in a reflective boundary **surface** (8) between the **layers**. At least one part with dimensions larger than 0.4 mm has a diffraction structure formed by **superimposition** of function describing a **macroscopic** structure with a microscopically fine **relief** profile.

**USE** - For protecting documents against **copying** ..

**ADVANTAGE** - The inexpensive new type of **security** element has a high resistance against counterfeiting attempts, e.g. by using a **holographic copying** technique, ..

**DESCRIPTION OF DRAWINGS** - The drawing shows a schematic sectional representation of a **security** element

- 1 **security** element
- 1 compound **layer**
- 9 microscopically fine optically effective structures
- 5, 6 **layers**
- 8 reflective boundary **surface**
- 10 transparent point

**Title Terms/Index Terms/Additional Words:** **SECURE**; **ELEMENT**; **MICRO**; **MACRO**; **STRUCTURE**; **PART**; **DIFFRACTED**; **FORMING**; **SUPERIMPOSED**; **FUNCTION**; **DESCRIPTION**; **MACROSCOPIC**; **MICROSCOPIC**; **FINE**; **RELIEF**; **PROFILE**

#### Class Codes

International Classification (Main): B42D-015/10, G02B-005/18  
(Additional/Secondary): B44F-001/12, G06K-019/16, G09F-003/03

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B42D-0015/10	A	I	F	B	20060101
B42D-0015/10	A	I		R	20060101
G02B-0005/18	A	I	L	R	20060101
B42D-0015/10	C	I	F	B	20060101
B42D-0015/10	C	I		R	20060101
G02B-0005/18	C	I	L	R	20060101

ECLA: B42D-015/10D

LOC L42D-035:22  
US Classification, Current Main: 283-072000  
US Classification, Issued: 28372

File Segment: EngPI; EPI;  
DWPI Class: T04; P76; P78; P81; P85  
Manual Codes (EPI/S-X): T04-C02; T04-D07B1

29/5, K/5 (Item 2 from file: 350)  
DI ALCOG(R) File 350: Derwent WPI X  
(c) 2008 Thomson Reuters. All rts. reserv.

0013505622 - Drawing available  
WPI ACC NO: 2003-598252/200356  
XRAM Acc No: C2003-162328  
XRPX Acc No: N2003-476681

Diffraction security unit, to test the validity of e.g. banknotes, is a  
plastics laminate in a mosaic pattern with a reflective threshold layer  
in the mosaic components forming structures  
Patent Assignee: OVD KINEGRAM AG (OVDK-N); SCHILLING A (SCHILLING A); STAUB R  
(STAUB R); TOMPKIN WR (TOMPKIN WR)

Inventor: SCHILLING A; STAUB R; TOMPKIN WR

Patent Family (11 patents, 101 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2003055691	A1	20030710	WO 2002EP12245	A	20021102	200356 B
AU 2002367089	A1	20030715	AU 2002367089	A	20021102	200421 E
EP 1458578	A1	20040922	EP 2002805743	A	20021102	200462 E
			WO 2002EP12245	A	20021102	
KR 2004090971	A	20041027	KR 2004710802	A	20040622	200516 E
US 20050068625	A1	20050331	WO 2002EP12245	A	20021102	200524 E
			US 2004499722	A	20040809	
JP 2005513568	W	20050512	WO 2002EP12245	A	20021102	200532 E
			JP 2003556246	A	20021102	
US 6924934	B2	20050802	WO 2002EP12245	A	20021102	200551 E
			US 2004499722	A	20040809	
TW 200301851	A	20030716	TW 2002132969	A	20021108	200556 E
CN 1615226	A	20050511	CN 2002827321	A	20021102	200558 E
TW 245978	B1	20051221	TW 2002132969	A	20021108	200707 E
RU 2291061	C2	20070110	WO 2002EP12245	A	20021102	200724 E
			RU 2004122474	A	20021102	

Priority Applications (no., kind, date): CH 20012364 A 20011222

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2003055691	A1	DE	27	16	
National Designated States, Original: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
Regional Designated States, Original: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					
AU 2002367089	A1	EN			Based on CPI patent WO 2003055691
EP 1458578	A1	DE			PCT Application WO 2002EP12245
Regional Designated States, Original: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
US 20050068625	A1	EN			PCT Application WO 2002EP12245
JP 2005513568	W	JA	18		PCT Application WO 2002EP12245
US 6924934	B2	EN			Based on CPI patent WO 2003055691
					PCT Application WO 2002EP12245
					Based on CPI patent WO 2003055691
TW 200301851	A	ZH			
TW 245978	B1	ZH			
RU 2291061	C2	RU			PCT Application WO 2002EP12245
					Based on CPI patent WO 2003055691

#### Alerting Abstract WO A1

NOVELTY - The diffractive **security** unit (2), to check the validity of banknotes etc., is a plastics **laminate** (1) in a mosaic with **surface** components arranged into a pattern.

DESCRIPTION - The **surface** components have a reflective threshold **layer** (8) which gives structures (9) between a modeling **layer** (5) and a protective **layer** (6), to deflect light (11) passing through the upper **layer** (4) of the **laminate**. At least one **surface** component is overlaid with a diffraction **layer** (24) with linear asymmetry, shaped with a diffraction structure into a mat format. The diffraction grid has a spatial frequency of 50-2000 lines/mm and the mat structure has a roughness of 20-2000 nm and a correlation length in at least one direction of 200-50000 nm

USE - The diffractive **security** unit is for testing the validity of banknotes and the like.

ADVANTAGE - The **security** unit is inexpensive which, in **diffracted light**, shows a static **surface** pattern which is clearly visible in a wide angle range.

DESCRIPTION OF DRAWINGS - The drawing shows a schematic section through the **laminate** structure.

- 1 plastics **laminate**
- 2 diffractive **security** unit
- 4 covering **layer**
- 5 modeling **layer**
- 6 protective **layer**
- 8 reflective threshold **layer**
- 9 structures
- 11 light
- 24 diffraction **layer**

**Title Terms/Index Terms/Additional Words:** DIFFRACTED; **SECURE**; UNIT; TEST; VALID; BANKNOTE; PLASTICS; **LAMINATE**; MOSAIC; PATTERN; REFLECT; THRESHOLD; **LAYER**; COMPONENT; FORMING; STRUCTURE

#### Class Codes

International Classification (Main): B42D-015/10, G03H-001/02, G03H-001/18

(Additional/Secondary): B42D-015/00, G02B-005/18

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B42D-0015/00	A	I		R	20060101
B42D-0015/00	A	I	F	B	20060101
B42D-0015/10	A	I	F	R	20060101
G03H-0001/18	A	I	L	R	20060101
B42D-0015/00	C	I		R	20060101
B42D-0015/10	C	I	F	R	20060101
G03H-0001/18	C	I	L	R	20060101

ECLA: B42D-015/00C

ICO: L42D-035:22

US Classification, Current Main: 359-566000, 359-576000; Secondary:

283-086000, 283-094000, 359-566000, 359-569000, 359-571000, 359-572000

US Classification, Issued: 359566, 359569, 359571, 359572, 359566, 28386, 28394, 359576

File Segment: CPI; EngPI

DWPI Class: A89; P76; P81; P84

Manual Codes (CPI/A-M): A12-D; A12-L03; A12-L04

29/5, K/6 (Item 3 from file: 350)

DIALCOG(R) File 350: Derwent WPI X

(c) 2008 Thomson Reuters. All rts. reserv.

0013424208 - Drawing available

WPI ACC NO: 2003-514895/200349

XRPX Acc No: N2003-408525

**Security element with diffractive structure has surface pattern with pair(s) of surfaces with first and second elements with diffraction structure formed by superimposing grid, relief structures**

Patent Assignee: OVD KINEGRAM AG (OVDK-N); TOMPKIN WR (TOMP-I);

WEITENEDER C (WEIT-I)

Inventor: SCHILLING A; TOMPKIN W; TOMPKIN WR; WEITENEDER C; ANDREAS S;

CHRISTOPH W ROBERT T W

Patent Family (13 patents, 100 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
DE 10157534	C1	20030515	DE 10157534	A	20011123	200349 B
WO 2003043832	A1	20030530	WO 2002EP11486	A	20021015	200353 E
AU 2002351767	A1	20030610	AU 2002351767	A	20021015	200419 E
EP 1446294	A1	20040818	EP 2002787486	A	20021015	200454 E
			WO 2002EP11486	A	20021015	
US 20050030626	A1	20050210	WO 2002EP11486	A	20021015	200512 E
			US 2004496321	A	20040513	
KR 2004088468	A	20041016	KR 2004707717	A	20040520	200514 E
CN 1589206	A	20050302	CN 2002823027	A	20021015	200537 E
US 6909547	B2	20050621	WO 2002EP11486	A	20021015	200543 E
			US 2004496321	A	20040513	
JP 2005524858	W	20050818	WO 2002EP11486	A	20021015	200555 E
			JP 2003545486	A	20021015	
RU 2271936	C2	20060320	WO 2002EP11486	A	20021015	200620 E
			RU 2004118842	A	20021015	
EP 1446294	B1	20071226	EP 2002787486	A	20021015	200803 E
			WO 2002EP11486	A	20021015	
DE 50211430	G	20080207	DE 50211430	A	20021015	200812 E
			EP 2002787486	A	20021015	
			WO 2002EP11486	A	20021015	
CN 100352669	C	20071205	CN 2002823027	A	20021015	200831 E

Priority Applications (no., kind, date): DE 10157534 A 20011123

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
DE 10157534	C1	DE	9	10	
WO 2003043832	A1	DE			
National Designated States, Original: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
Regional Designated States, Original: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					
AU 2002351767	A1	EN			Based on CPI patent WO 2003043832
EP 1446294	A1	DE			PCT Application WO 2002EP11486
					Based on CPI patent WO 2003043832
Regional Designated States, Original: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
US 20050030626	A1	EN			PCT Application WO 2002EP11486
US 6909547	B2	EN			PCT Application WO 2002EP11486
					Based on CPI patent WO 2003043832
JP 2005524858	W	JA	16		PCT Application WO 2002EP11486
					Based on CPI patent WO 2003043832
RU 2271936	C2	RU			PCT Application WO 2002EP11486
					Based on CPI patent WO 2003043832
EP 1446294	B1	DE			PCT Application WO 2002EP11486
					Based on CPI patent WO 2003043832
Regional Designated States, Original: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR					
DE 50211430	G	DE			Application EP 2002787486
					PCT Application WO 2002EP11486
					Based on CPI patent EP 1446294
					Based on CPI patent WO 2003043832

#### Alerting Abstract DE C1

NOVELTY - The device is a plastic laminate with a mosaic surface pattern of surface elements with a light reflective boundary between a molded layer and a covering layer. The molded layer has optically active structures at the boundary. The surface pattern (12) has at least one pair of surfaces with first and second elements (14, 15) with a diffraction structure formed by superimposing a grid structure and a relief structure.

USE - For security applications.

ADVANTAGE - Difficult to copy and can be checked for validity with a simple arrangement.

DESCRIPTION OF DRAWINGS - The drawing shows a schematic representation of an inventive device

12 **surface** pattern  
14, 15 first and second **surface** elements

**Title Terms/Index Terms/Additional Words:** **SECURE**; ELEMENT; DIFFRACTED; STRUCTURE; **SURFACE**; PATTERN; PAIR; FIRST; SECOND; FORMING; SUPERIMPOSED; GRID; **RELIEF**

#### Class Codes

International Classification (Main): B42D-015/10, G02B-005/18

International Classification (+ Attributes)

IPC + Level Value Position Status Version

US Classification, Current Main: 359-569000; Secondary: 359-573000

US Classification, Issued: 359569, 359573, 359569, 359573, 359567, 359566, 28386

File Segment: EngPI; EPI;

DWPI Class: V07; P73; P76; P78; P81; P84

Manual Codes (EPI/S-X): V07-F02C

**29/5, K/7 (Item 4 from file: 350)**

DIALOG(R) File 350: Derwent WPI X

(c) 2008 Thomson Reuters. All rights reserved.

0013257235 - Drawing available

WPI ACC NO: 2003-342770/200332

XRPX Acc No: N2003-274161

**Label incorporating machine-readable diffractive bar code has rectangular fields of bar code provided with diffractive relief structure**

Patent Assignee: GEHR P (GEHR-I); OVD K NEGRAM AG (OVDK-N); SCHILLING A (SCHILLING-I); STAUB R (STAUB-I); TOMPKIN W R (TOMPKIN-I)

Inventor: GEHR P; SCHILLING A; STAUB R; TOMPKIN W R; ANDREAS S; PETER G; RENE S; ROBERT T W

**Patent Family** (17 patents, 100 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2003027952	A1	20030403	WO 2002EP9985	A	20020906	200332 B
DE 10146508	A1	20030417	DE 10146508	A	20010921	200333 E
DE 10146508	C2	20030724	DE 10146508	A	20010921	200351 E
EP 1428175	A1	20040616	EP 2002777015	A	20020906	200439 E
			WO 2002EP9985	A	20020906	
BR 200212666	A	20040824	BR 200212666	A	20020906	200458 E
			WO 2002EP9985	A	20020906	
AU 2002339521	A1	20030407	AU 2002339521	A	20020906	200461 E
KR 2004044971	A	20040531	KR 2004704135	A	20040320	200463 E
US 20040240006	A1	20041202	WO 2002EP9985	A	20020906	200481 E
			US 2004489383	A	20040311	
CN 1589455	A	20050302	CN 2002822794	A	20020906	200537 E
MX 2004002503	A1	20040701	WO 2002EP9985	A	20020906	200545 E
			MX 20042503	A	20040317	
US 6927885	B2	20050809	WO 2002EP9985	A	20020906	200552 E
			US 2004489383	A	20040311	
EP 1428175	B1	20050810	EP 2002777015	A	20020906	200554 E
			WO 2002EP9985	A	20020906	
DE 50203908	G	20050915	DE 50203908	A	20020906	200561 E
			EP 2002777015	A	20020906	
			WO 2002EP9985	A	20020906	
ES 2244812	T3	20051216	EP 2002777015	A	20020906	200604 E
TW 231456	B1	20050421	TW 2002119645	A	20020829	200635 E
RU 2291485	C2	20070110	WO 2002EP9985	A	20020906	200724 E
			RU 2004111980	A	20020906	
CN 1332352	C	20070815	CN 2002822794	A	20020906	200810 E

Priority Applications (no., kind, date): DE 10146508 A 20010921

#### Alerting Abstract WO A1

NOVELTY - The label (1) has a composite **layer** structure incorporating at least one machine-readable diffractive bar code (3) with narrow rectangular fields (4) having a diffractive **relief** structure for bending and polarizing incident light and intermediate areas (5). A second

diffraction relief structure with differing polarization characteristics is used for the intermediate surfaces or for a second bar code.

DESCRIPTION - An INDEPENDENT CLAIM for an optical bar code reader is also included.

USE - The diffraction bar code label is used for goods identification or document authentication.

ADVANTAGE - Cost-effective label which can be read by hand-held bar code reader.

DESCRIPTION OF DRAWINGS - The figure shows a schematic representation of a label with a diffraction bar code.

- 1 Label
- 3 Diffraction bar code
- 4 Narrow rectangular fields
- 5 Intermediate areas

**Title Terms/Index Terms/Additional Words:** LABEL; INCORPORATE; MACHINE; READ; DIFFRACTED; BAR; CODE; RECTANGLE; FIELD; RELIEF; STRUCTURE

#### Class Codes

International Classification (Main): G03H-001/00, G06K-019/16, G06K-009/76  
(Additional/Secondary): G02B-005/18

International Classification (+ Attributes)

IPC + Level Value Position Status Version

ECLA: G06K-019/06C5, G06K-019/16

US Classification, Current Main: 359-002000; Secondary: 283-086000, 359-567000, 359-569000, 430-010000

US Classification, Issued: 3592, 359569, 3592, 359567, 28386, 43010

File Segment: EngPI; EPI;

DWPI Class: T04; P81; P84; P85

Manual Codes (EPI/S-X): T04-C02

**...incorporating machine-readable diffraction bar code has rectangular fields of bar code provided with diffraction relief structure**

**Alerting Abstract ...NOVELTY** - The label (1) has a composite layer structure incorporating at least one machine-readable diffraction bar code (3) with narrow rectangular fields (4) having a diffraction relief structure for bending and polarizing incident light and intermediate areas (5). A second diffraction relief structure with differing polarization characteristics is used for the intermediate surfaces or for a second bar code.

**Title Terms.../Index Terms/Additional Words:** RELIEF;

#### Original Publication Data by Authority

##### Argentina

Assignee name & address:

##### Original Abstracts:

...A label (1) made from a layer composite (15), comprises at least one machine-readable diffraction barcode (3) of narrow, rectangular fields...

...optically active structure and intermediate areas (5). The optically-active structures, covered with a reflection layer, are embedded between layers in the layer composite (15). The diffraction relief structure used for the fields (4) in the diffraction barcode (3), bend and polarise incident light and diffract the light into a half-space above the diffraction relief structure. A second diffraction relief structure is different at least with regard to the polarisation of the polarised back-scattered light, when compared with the first diffraction relief structure. The second diffraction relief structure may be used, for example, for field surfaces of a second bar code in the bar code field (9) on the label (1), or for the intermediate surfaces (5). The polarised back-scattered light from the diffraction bar code (3) may be detected by means of a conventional commercial reading device for...

DI ALCOG(R) File 350: Derwent WPI X  
(c) 2008 Thomson Reuters. All rts. reserv.

0012479852 - Drawing available  
WPI ACC NO: 2002-426742/ **200245**  
XRPX Acc No: N2002-335544

Light - diffracting **binary grating structure**, has microscopic mesa structure with additive superimposition of phase-displaced rectangular structures

Patent Assignee: OVD KINEGRAM AG (OVDK-N); SCHILLING A (SCH-I); STAUB R (STAU-I); TOMPKIN WR (TOMP-I)

Inventor: SCHILLING A; STAUB R; TOMPKIN WR; STAUB WRT R

**Patent Family** (13 patents, 97 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	
WO 2002037145	A2	20020510	WO 2001EP12679	A	20011102	200245	B
DE 10054503	A1	20020606	DE 10054503	A	20001103	200245	E
AU 200221802	A	20020515	AU 200221802	A	20011102	200258	E
EP 1356319	A2	20031029	EP 2001992904	A	20011102	200379	E
			WO 2001EP12679	A	20011102		
US 20040021945	A1	20040205	WO 2001EP12679	A	20011102	200411	E
			US 2003415640	A	20030825		
CN 1478205	A	20040225	CN 2001819949	A	20011102	200436	E
DE 10054503	B4	20050203	DE 10054503	A	20001103	200510	E
EP 1356319	B1	20050209	EP 2001992904	A	20011102	200512	E
			WO 2001EP12679	A	20011102		
DE 50105339	G	20050317	DE 50105339	A	20011102	200522	E
			EP 2001992904	A	20011102		
			WO 2001EP12679	A	20011102		
US 6906861	B2	20050614	WO 2001EP12679	A	20011102	200540	E
			US 2003415640	A	20030825		
ES 2236350	T3	20050716	EP 2001992904	A	20011102	200549	E
AU 2002221802	A8	20051013	AU 2002221802	A	20011102	200611	E
CN 1200289	C	20050504	CN 2001819949	A	20011102	200641	E

Priority Applications (no., kind, date): DE 10054503 A 20001103

#### Alerting Abstract WO A2

NOVELTY - The binary grating structure has a microscopic mesa structure (2) with plateaux areas (5) separated by rectangular troughs (4), with periodic repetition of the trough configuration containing a defined number of troughs. The mesa structure period (T) contains an additive superimposition of a number of phase-displaced rectangular structures with the same period.

DESCRIPTION - An INDEPENDENT CLAIM for a security element with a binary grating structure is also included.

USE - The light - diffracting binary grating structure is used for an optically diffractive security element.

ADVANTAGE - The binary grating structure cannot be copied holographically.

DESCRIPTION OF DRAWINGS - The figure shows a perspective view of a light - diffracting binary grating structure.

2 Microscopic mesa structure

4 Rectangular troughs

5 Plateaux areas

T Mesa structure period

**Title Terms/Index Terms/Additional Words:** LIGHT; DIFFRACTED; BINARY; GRATING; STRUCTURE; MICROSCOPIC; MESA; ADDITIVE; SUPERIMPOSED; PHASE; DISPLACE; RECTANGLE

#### Class Codes

International Classification (Main): G02B-005/18

International Classification (+ Attributes)

IPC + Level Value Position Status Version

G02B-0005/18 A I R 20060101

G02B-0005/18 C I R 20060101

ECLA: G02B-005/18

US Classification, Current Main: 359-566000, 359-567000; Secondary:

359-572000, 359-575000, 428-916000

US Classification, Issued: 359566, 359572, 359575, 428916, 359567



File Segment: EngPI; EPI;  
DWPI Class: V07; P78; P81  
Manual Codes (EPI/S-X): V07-F02B

**29/5, K/15** (Item 12 from file: 350)  
DIALOG(R) File 350: Derwent WPI X  
(c) 2008 Thomson Reuters. All rts. reserv.

0009709664 - Drawing available  
WPI ACC NO: 1999-539883/ **199945**  
XRPX Acc No: N1999-400064

Surface **pattern comprising mosaic-type components**  
Patent Assignee: ELECTROWATT TECHNOLOGY INNOVATION AG (ELEC-N); OVD  
KI NEGRAM AG (OVDK-N); OVD KI NEGRAM AG (OVDK-N)  
Inventor: STAUB R; TOMPKIN W R

**Patent Family** (8 patents, 20 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	
WO 1999038039	A1	19990729	WO 1999EP388	A	19990121	199945	B
EP 1051648	A1	20001115	EP 1999903666	A	19990121	200059	E
			WO 1999EP388	A	19990121		
US 6324004	B1	20011127	WO 1999EP388	A	19990121	200175	E
			US 2000601064	A	20000727		
EP 1051648	B1	20030409	EP 1999903666	A	19990121	200325	E
			WO 1999EP388	A	19990121		
DE 59904949	G	20030515	DE 59904949	A	19990121	200340	E
			EP 1999903666	A	19990121		
			WO 1999EP388	A	19990121		
CH 693316	A5	20030530	CH 1998191	A	19980127	200346	E
CA 2319137	C	20030923	CA 2319137	A	19990121	200369	E
			WO 1999EP388	A	19990121		
ES 2197612	T3	20040101	EP 1999903666	A	19990121	200412	E

Priority Applications (no., kind, date): CH 1998191 A 19980127

#### Alerting Abstract WO A1

NOVELTY - The **surface** components (3) and the part components (5) contain **relief** structures diffracting the microscopically fine, visible light or mirroring or diffusing **surfaces**. A first diffracting grid is arranged in the picture component (2) and a second such grid in the background component (4). The two diffracting grids are a **superimposition** of at least two different **relief** structures **diffracting** microscopically fine, visible **light**.

USE - For diffraction of microscopically fine, visible light.

ADVANTAGE - The pattern is economical and is difficult to counterfeit even with **holographic copying** methods. Even in diffuse light well visible new authenticity features for diffraction-optical components are created

DESCRIPTION OF DRAWINGS - 2 picture component

3 **surface** component  
4 background component  
5 part component

**Title Terms/Index Terms/Additional Words:** **SURFACE**; **PATTERN**; **COMPRI SE**;  
**MO SAI C**; **TYPE**; **COMPONENT**

#### Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B42D-0015/00	A	I	R	20060101
G02B-0005/18	A	I	R	20060101
G06K-0019/06	A	I	R	20060101
G06K-0019/16	A	I	R	20060101
B42D-0015/00	C	I	R	20060101
G02B-0005/18	C	I	R	20060101
G06K-0019/06	C	I	R	20060101
G06K-0019/14	C	I	R	20060101

ECLA: B42D-015/00C, G02B-005/18L, G06K-019/06C5, G06K-019/16

ICO: L42D-035:22

US Classification, Current Main: 359-567000; Secondary: 283-086000,  
283-090000, 283-091000, 283-093000, 359-566000, 359-575000, 428-916000

US Classification, Issued: 359567, 359566, 359575, 428916, 28390, 28391, 28393, 28386

**29/5, K/16** (Item 13 from file: 350)  
DIALOG(R) File 350: Derwent WPI X  
(c) 2008 Thomson Reuters. All rts. reserv.

0009354600 - Drawing available  
WPI ACC NO: 1999-287698/ **199927**  
XRPX Acc No: N1999-214878

**Micro-graphic device for anti-forgery protection of e.g. bank notes and credit cards**

Patent Assignee: COMMONWEALTH SCI & IND RES ORG (CSI R); KIMM M C (KIMM-I)  
; LEE R A (LEER-I); QUINT G L (QUIN-I)

Inventor: LEE R; LEE R A; QUINT G L; KIMM M C

**Patent Family** (8 patents, 81 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 1999017941	A1	19990415	WO 1998AU821	A	19980930	199927 B
AU 199893315	A	19990427	AU 199893315	A	19980930	199936 E
EP 1023187	A1	20000802	EP 1998946157	A	19980930	200038 E
			WO 1998AU821	A	19980930	
AU 732931	B	20010503	AU 199893315	A	19980930	200129 E
EP 1023187	B1	20070307	EP 1998946157	A	19980930	200720 E
			WO 1998AU821	A	19980930	
DE 69837275	E	20070419	DE 69837275	A	19980930	200729 E
			EP 1998946157	A	19980930	
			WO 1998AU821	A	19980930	
DE 69837275	T2	20071115	DE 69837275	A	19980930	200777 E
			EP 1998946157	A	19980930	
			WO 1998AU821	A	19980930	
US 20080088124	A1	20080417	WO 1998AU821	A	19980930	200829 E
			US 2000509649	A	20000330	
			US 2007691761	A	20070327	

Priority Applications (no., kind, date): AU 19979572 A 19971002

**Alerting Abstract WO A1**

NOVELTY - A micro-graphic device (1) has a **surface relief** structure (2) with regions (3) which include grey scale regions (4) too small to be separately resolved by the human eye. Each region is one of a limited number of different grey scale region structure types appearing to have different intensities when illuminated by a light source (5) and viewed by an observer (6) because of their different scattering characteristics.

DESCRIPTION - An independent claim is included for a valuable document incorporating micro-graphic device.

USE - Anti-forgery protection of bank-notes, credit **cards**, cheques, share certificates etc.

ADVANTAGE - Improves **security** of items.

DESCRIPTION OF DRAWINGS - The drawing is a schematic diagram illustrating operation of the invention

- 1 Micro-graphic device
- 2 **Surface relief** structure
- 3 Regions
- 4 Grey scale regions
- 5 Light source
- 6 Observer

**Title Terms/Index Terms/Additional Words:** MICRO; GRAPHIC; DEVICE; ANTI;  
FORGE; PROTECT; BANK; NOTE; CREDIT; **CARD**

**Class Codes**

International Classification (+ Attributes)  
IPC + Level Value Position Status Version

ECLA: B41M 003/14, B42D 015/10  
ICO: L41M 003/14T, L42D 035/22  
US Classification, Current Main: 283-072000  
US Classification, Issued: 28372

File Segment: EngPI; EPI;  
DWPI Class: T04; V07; P76; P78  
Manual Codes (EPI/S-X): T04-C02; T04-D07B1; V07-F02C

## **Micro-graphic device for anti-forgery protection of e.g. bank notes and credit cards**

**Alerting Abstract** ...NOVELTY - A micro-graphic device (1) has a **surface relief** structure (2) with regions (3) which include grey scale regions (4) too small to be...

...USE - Anti-forgery protection of bank-notes, credit **cards**, cheques, share certificates etc...

...ADVANTAGE - Improves **security** of items...

...2 **Surface relief** structure...

**Title Terms**.../Index Terms/Additional Words: **CARD**

### **Original Publication Data by Authority**

#### **Argentina**

Assignee name & address:

#### **Original Abstracts:**

A device (1) has a **surface relief** structure (2) which has a plurality of regions (3). The regions (3) include grey scale...

...The device is useful in authentication applications and has particular applicability as an anti-forgery **security** device on bank notes, credits **cards**, cheques, share certificates and other similar documents...

...A **security** device including a **surface relief** structure having a plurality of regions. The plurality of regions includes gray scale regions which together form a **macroscopic** gray scale image when illuminated by incident light and viewed by an observer. Each gray...

...that 0.25 mm Each gray scale region includes a plurality of scattering centres for **scattering** incident light, each **scattering** centre including one or more **surface relief** structure elements. Each gray scale region has a gray scale value determined by the degree of scattering caused by the scattering centres and **surface relief** structure elements...

...A device (1) has a **surface relief** structure (2) which has a plurality of regions (3). The regions (3) include grey scale...

...The device is useful in authentication applications and has particular applicability as an anti-forgery **security** device on bank notes, credits **cards**, cheques, share certificates and other similar documents...

...L'invention concerne un dispositif (1) presentant une structure superficielle en **relief** (2) comportant une pluralite de regions (3). Ces regions (3) comportent des regions en demi...

...des fins d'authentification et peut trouver des applications particulieres en tant que dispositif de **securite** anti-contrefacon sur des billets de banque, des cartes de credit, des cheques, des certificats...

#### **Claims:**

...A micrographic device having a **surface relief** structure which has a plurality of regions, wherein the regions include grey scale regions which...

...too small to be separately resolvable to the human eye, but which together generate a **macroscopic** graphic, line art or text image which can be observed by the human eye, each...

...each structure type having diffuse scattering physical characteristics which provide a particular level of diffuse **scattering** of incident light, the different grey scale region structure types having, by reason of their differing diffuse scattering...

...and viewed by an observer from any direction whereby the grey scale regions generate the **macroscopic** graphic, line art or text image composed of different grey scales...

...Dispositif micrographique ayant une structure de **relief en surface** comprenant une pluralite de regions, dans lequel les regions comprennent des regions d'echelle de...

...1</b>. A **security** device including a **surface relief** structure having a plurality of regions, the plurality of regions including gray scale regions which together form a **macroscopic** gray scale image when illuminated by incident light and viewed by an observer, each gray...

...0.25 mm wherein each gray scale region includes a plurality of scattering centres for **scattering** incident light, each **scattering** centre including one or more **surface relief** structure elements, and wherein each gray scale region has a gray scale value determined by the degree of scattering caused by the scattering centres and **surface relief** structure elements. Basic Derwent Week: **199927**

**29/5, K/17** (Item 14 from file: 350)  
 DIALOG(R) File 350: Derwent WPI X  
 (c) 2008 Thomson Reuters. All rts. reserv.

0008457112 - Drawing available  
 WPI ACC NO: 1997-310446/ **199728**  
 XRPX Acc No: N1997-257198

**Optical information carrier made of composite laminate with carrier foil - being light transparent in preset spectral range, has microscopically fine relief structures formed on underside of foil coated with base layer having refractive index differing from foil index in part of electromagnetic spectrum**

Patent Assignee: ELECTROWATT TECHNOLOGY INNOVATION AG (ELEC-N); LANDIS & GYR TECHNOLOGY INNOVATION AG (LANI); OVD KINEGRAM AG (OVDK-N)  
 Inventor: STAUB R; TOMPKINS W R; TOMPKINS W R

**Patent Family** (15 patents, 69 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 1997019820	A1	19970605	WO 1996EP4987	A	19961114	199728 B
AU 199676244	A	19970619	AU 199676244	A	19961114	199741 E
EP 871574	A1	19981021	EP 1996939036	A	19961114	199846 E
			WO 1996EP4987	A	19961114	
US 6060143	A	20000509	WO 1996EP4987	A	19961114	200030 E
			US 199877046	A	19980518	
CH 690529	A5	20000929	CH 19953567	A	19951218	200050 E
CH 691750	A5	20010928	CH 19953369	A	19951128	200159 E
EP 1182054	A2	20020227	EP 1996939036	A	19961114	200222 E
			EP 2001121968	A	19961114	
EP 1182055	A2	20020227	EP 1996939036	A	19961114	200222 E
			EP 2001122061	A	19961114	
EP 871574	B1	20020410	EP 1996939036	A	19961114	200227 E
			WO 1996EP4987	A	19961114	
			EP 2001121968	A	19961114	
			EP 2001122061	A	19961114	
DE 69620636	E	20020516	DE 69620636	A	19961114	200240 E
			EP 1996939036	A	19961114	
			WO 1996EP4987	A	19961114	
ES 2171747	T3	20020916	EP 1996939036	A	19961114	200270 E
CA 2238384	C	20070116	CA 2238384	A	19961114	200707 E
			WO 1996EP4987	A	19961114	
EP 1182055	B1	20070321	EP 1996939036	A	19970605	200723 E
			EP 2001122061	A	19961114	
DE 69636991	E	20070503	DE 69636991	A	19961114	200731 E
			EP 2001122061	A	19961114	
DE 69636991	T2	20071206	DE 69636991	A	19961114	200782 E
			EP 2001122061	A	19961114	

Priority Applications (no., kind, date): CH 19953369 A 19951128; CH 19953567 A 19951218

#### Patent Details

Number	Kind	Lang	Pg	Dwg	Filing	Notes
WO 1997019820	A1	EN	37	16		

National Designated States, Original: AL AM AT AU AZ BB BG BR BY CA CH CN  
CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG  
MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN  
Regional Designated States, Original: AT BE CH DE DK EA ES FI FR GB GR IE  
IT KE LS LU MC MW NL OA PT SD SE SZ UG  
AU 199676244 A EN Based on CPI patent WO 1997019820  
EP 871574 A1 EN PCT Application WO 1996EP4987  
Based on CPI patent WO 1997019820  
Regional Designated States, Original: AT CH DE DK ES FI FR GB GR IE IT LI  
LT LV NL PT SE  
US 6060143 A EN PCT Application WO 1996EP4987  
Based on CPI patent WO 1997019820  
CH 690529 A5 DE  
CH 691750 A5 DE  
EP 1182054 A2 EN Division of application EP 1996939036  
Division of patent EP 871574  
Regional Designated States, Original: AT CH DE DK ES FI FR GB GR IE IT LI  
LT LV NL PT SE  
EP 1182055 A2 EN Division of application EP 1996939036  
Division of patent EP 871574  
Regional Designated States, Original: AT CH DE DK ES FI FR GB GR IE IT LI  
NL PT SE  
EP 871574 B1 EN PCT Application WO 1996EP4987  
Related to application EP 2001121968  
Related to application EP 2001122061  
Related to patent EP 1182054  
Related to patent EP 1182055  
Based on CPI patent WO 1997019820  
Regional Designated States, Original: AT CH DE DK ES FI FR GB GR IE IT LI  
LT LV NL PT SE  
DE 69620636 E DE Application EP 1996939036  
PCT Application WO 1996EP4987  
Based on CPI patent EP 871574  
Based on CPI patent WO 1997019820  
ES 2171747 T3 ES Application EP 1996939036  
Based on CPI patent EP 871574  
CA 2238384 C EN PCT Application WO 1996EP4987  
Based on CPI patent WO 1997019820  
EP 1182055 B1 EN Division of application EP 1996939036  
Division of patent EP 871574  
Regional Designated States, Original: AT CH DE ES FI FR GB IT LI NL SE  
DE 69636991 E DE Application EP 2001122061  
Based on CPI patent EP 1182055  
DE 69636991 T2 DE Application EP 2001122061  
Based on CPI patent EP 1182055

#### Alerting Abstract WO A1

The carrier is in the form of a composite **lamine** (2) with a carrier foil (3) with microscopically fine **relief** structures. The foil is light transparent in predetermined spectral range. Microscopically fine **relief** structures (10) are formed on underside of foil, which is coated with a base **layer** (8).

The base **layer** has a refractive index differing from the index of the foil in a part of the electromagnetic spectrum so that the **relief** structures on the underside partially reflect and **diffract** the light (11) which has penetrated into the **lamine**. The top side of the foil has optically effective structures (7) allowing light impinging on the top side to penetrate into the **lamine**. The thickness of the foil is 20 micrometres.

ADVANTAGE - Has optical **security** features that cannot be **copied** using **holographic** methods, and can be produced in large numbers.

**Title Terms/**Index Terms/Additional Words: OPTICAL; INFORMATION; CARRY; MADE; COMPOSITE; **LAMINATE**; FOIL; LIGHT; TRANSPARENT; PRESET; SPECTRAL; RANGE; MICROSCOPIC; FINE; **RELIEF**; FORMING UNDERSIDE; COATING; BASE; **LAYER**; REFRACT; INDEX; DIFFER; PART; ELECTROMAGNET; SPECTRUM

#### Class Codes

International Classification (+ Attributes)  
IPC + Level Value Position Status Version

ECLA: B42D-015/10, B42D-015/10D, G02B-005/12, G02B-005/18L, G02B-005/18R,  
 G03H-001/02, G06K-019/06C5, G06K-019/16  
 ICC: L42D-035:22  
 US Classification, Issued: 42864.4, 428195, 428201, 428209, 428457, 428913,  
 428916, 369275.1, 42864.1

File Segment: EngPI; EPI;  
 DWPI Class: T04; V07; P73; P76; P81; P84; P75  
 Manual Codes (EPI/S-X): T04-C02; V07-F02C

**29/5, K/18 (Item 15 from file: 350)**  
 DIALOG(R) File 350: Derwent WPI X  
 (c) 2008 Thomson Reuters. All rts. reserv.

0008284448 - Drawing available  
 WPI ACC NO: 1997-393846/ **199736**  
 XRPX Acc No: N1997-327722

Surface pattern for value bearing papers, bonds and packaging foils - has  
 at least two surface portions with relief structures formed by  
 superimposition of four gratings respectively  
 Patent Assignee: ELECTROWATT TECHNOLOGY INNOVATION AG (ELEC-N); LANDIS &  
 GYR TECHNOLOGY INNOVATION AG (LANI); OVD KINEGRAM AG (OVDK-N)  
 Inventor: STAUB R; TOMPKIN W R

**Patent Family** (7 patents, 67 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 1997027504	A1	19970731	WO 1996EP2599	A	19960617	199736 B
AU 199663559	A	19970820	AU 199663559	A	19960617	199749 E
EP 876629	A1	19981111	EP 1996922815	A	19960617	199849 E
			WO 1996EP2599	A	19960617	
US 5969863	A	19991019	WO 1996EP2599	A	19960617	199950 E
			US 1998117305	A	19980903	
EP 876629	B1	20020814	EP 1996922815	A	19960617	200255 E
			WO 1996EP2599	A	19960617	
DE 69623044	E	20020919	DE 69623044	A	19960617	200269 E
			EP 1996922815	A	19960617	
			WO 1996EP2599	A	19960617	
CA 2241285	C	20040817	CA 2241285	A	19960617	200455 E
			WO 1996EP2599	A	19960617	

Priority Applications (no., kind, date): CH 1996210 A 19960126

#### Patent Details

Number	Kind	Lang	Pg	Dwg	Filing Notes
WO 1997027504	A1	EN	31	13	
National Designated States, Original: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN					
Regional Designated States, Original: AT BE CH DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE					
AU 199663559	A	EN			Based on CPI patent WO 1997027504
EP 876629	A1	EN			PCT Application WO 1996EP2599 Based on CPI patent WO 1997027504
Regional Designated States, Original: CH DE FR GB LI NL					
US 5969863	A	EN			PCT Application WO 1996EP2599
					Based on CPI patent WO 1997027504
EP 876629	B1	EN			PCT Application WO 1996EP2599 Based on CPI patent WO 1997027504
Regional Designated States, Original: CH DE FR GB LI NL					
DE 69623044	E	DE			Application EP 1996922815 PCT Application WO 1996EP2599 Based on CPI patent EP 876629 Based on CPI patent WO 1997027504
CA 2241285	C	EN			PCT Application WO 1996EP2599 Based on CPI patent WO 1997027504

#### Alerting Abstract WO A1

The pattern (10) has at least two surface portions (11, 12) which  
 contain microscopically fine, light diffracting relief structures.  
 The surface portions light up upon rotary and or tilting movement. The

**relief** structure of the first **surface** portion is a grating structure which is formed by the **superimposition** of first and second gratings G1 and G2 respectively and that the **relief** structures of the second **surface** portion is a grating G3 or a further grating structure which is formed by the **superimposition** of a third grating G3 and a fourth grating G4.

The furrows of the grating G1 and the furrows of the grating G2 include an azimuth angle, that the grating G3 is identical to the grating G1 and the grating G4 is identical to the grating G2. The furrows of the grating G3 and the furrows of the grating G4 include another azimuth angle.

**ADVANTAGE** - Has conspicuous patterns of optical grating structures, which is difficult to forge.

**Title Terms/Index Terms/Additional Words:** **SURFACE** ; **PATTERN**; **VALUE**;  
**BEARING**; **PAPER**; **BOND**; **PACKAGE**; **FOIL**; **TWO**; **PORTION**; **RELIEF** ; **STRUCTURE**;  
**FORMING**; **SUPERIMPOSED**; **FOUR**; **GRATING**; **RESPECTIVE**

#### **Class Codes**

**International Classification (Main):** G02B-005/18

**International Classification (+ Attributes)**

**IPC + Level Value Position Status Version**

G02B-0005/18 A I R 20060101

G02B-0005/18 C I R 20060101

**ECLA:** G02B-005/18E

**US Classification, Issued:** 359567, 359572, 359576, 3592, 283902

**File Segment:** EngPI ; ;  
**DWPI Class:** P76; P78; P81

**Surface pattern for value bearing papers, bonds and packaging foils...**  
**...has at least two surface portions with relief structures formed by**  
**superimposition of four gratings respectively**

#### **Original Titles:**

... **SURFACE** **PATTERN**...

... **DI AGRAMME DE SURFACE**  
...

... **SURFACE** **PATTERN**...

... **DI AGRAMME DE SURFACE**  
...

... **Surface** pattern including **light - diffracting relief** structures in  
of...

... **SURFACE** **PATTERN**

**Alerting Abstract** ...The pattern (10) has at least two **surface** portions (11,12) which contain microscopically fine, **light diffracting relief** structures. The **surface** portions light up upon rotary and or tilting movement. The **relief** structure of the first **surface** portion is a grating structure which is formed by the **superimposition** of first and second gratings G1 and G2 respectively and that the **relief** structures of the second **surface** portion is a grating G3 or a further grating structure which is formed by the **superimposition** of a third grating G3 and a fourth grating G4...

**Title Terms/Index Terms/Additional Words:** **SURFACE** ; ...

... **RELIEF** ;

#### **Original Publication Data by Authority**

##### **Argentina**

**Assignee name & address:**

##### **Original Abstracts:**

A **surface** pattern (10) has **two surface** portions (11; 12) with microscopically fine, **light - diffracting relief** structures. The **relief** structures are in the form of grating structures G1 or G2,

respectively, which are composed of at least two superimposed gratings G1 and G2, G3 and G4, respectively. The light - diffracting properties of the gratings G1 to G4 are so selected in accordance with various criteria that novel optical effects which cannot be holographically copied can be achieved with the grating structures GS1 and GS2. Such surface patterns are suitable as optical security elements for documents or articles of all kinds as well as packaging foils...

...A surface pattern has two surface portions with microscopically fine, light - diffracting relief structures. The relief structures are in the form of grating structures GS1 and GS2, respectively, which are composed of at least two superimposed gratings G1 and G2, G3 and G4, respectively. The light - diffracting properties of the gratings G1 to G4 are so selected in accordance with various criteria that novel optical effects which cannot be holographically copied can be achieved with the grating structures GS1 and GS2. Such surface patterns are suitable as optical security elements for documents or articles of all kinds as well as packing foils...

...A surface pattern (10) has two surface portions (11; 12) with microscopically fine, light - diffracting relief structures. The relief structures are in the form of grating structures GS1 or GS2, respectively, which are composed of at least two superimposed gratings G1 and G2, G3 and G4, respectively. The light - diffracting properties of the gratings G1 to G4 are so selected in accordance with various criteria that novel optical effects which cannot be holographically copied can be achieved with the grating structures GS1 and GS2. Such surface patterns are suitable as optical security elements for documents or articles of all kinds as well as packaging foils.

#### Claims:

...A surface pattern (10; 17; 39) having at least first and second surface portions (11; 12; 22; 23; 40 to 45) which are simultaneously in the field of vision of an observer, and contain microscopically fine light - diffracting relief structures disposed at the interface of two layers, and while illuminated with incident polychromatic light (1) the surface portions (11; 12; 22; 23; 40 to 45) light up in diffracted light (2) or become dark upon rotary and/or tilting movement depending on the direction of observation defined by the observer's eye, wherein  
 at least the relief structure of the first surface portion (11; 22; 40) is formed by a superimposition GS1 of at least a first grating G1 and a second grating G2, with associated grating vectors  $k_m(G1)$  and  $k_n(G2)$ , where m, n denote the respective order of diffraction, the diffraction property of the superimposed relief structure of the first surface portion (11; 22; 40) is determined by the sumvector  $k_m, n(GS1)$  of the grating vectors  $k_m(G1)$  and  $k_n(G2)$ , the second surface portion (12; 23; 41 to 45) serving as mutual reference to the first surface portion (11; 22; 40) contains a grating structure G with the associated grating vector  $k(G)$  which is different from the superimposed grating structure GS1 of the first surface portion (11; 22; 40), and wherein the parameters of the grating vectors  $k_m(G1)$  and  $k_n(G2)$  used for the relief structure of the first surface portion (11; 22; 40) have those values that for a selected wavelength  $\lambda$  the sumvector  $k_m, n(GS1)$  of the superimposed grating GS1 is equal in magnitude and direction to the grating vector  $k(G)$  of the second surface portion (12; 23; 41 to 45) so that the first surface portion (11; 22; 40) and the second surface portion (12; 23; 41 to 45) both diffract light (2) of the same colour of the selected wavelength  $\lambda$  in the direction of observation (A; 20; 24; 27; 38; S; S') determined by the sumvector  $k_m, n(GS1)$  and its associated diffraction angle  $\theta_{m, n}$  of the superimposed grating GS1 but diffract light (2) of different colours in other directions.

Diagramme de surface (10; 17; 39) ayant au moins une première et une deuxième portions de surface (11; 12; 22; 23; 40 à 45) qui sont simultanément dans le champ de vision d'un observateur et qui contiennent des structures de relief de diffraction de lumière microscopiquement fines disposées à l'interface de deux couches et, lorsqu'elles sont éclairées par une lumière incidente polychromatique (1), les portions de surface (11; 12; 22; 23; 40 à 45) s'éclairent dans la lumière diffractée (2) ou deviennent obscures lors d'un mouvement de rotation et/ou d'inclinaison, en fonction de la direction d'observation définie par l'œil de l'observateur, dans lequel au moins la structure de relief de la première portion de surface (11; 22; 40) est formée par



une superposition GS1 d'au moins une première grille G1 et une deuxième grille G2, ayant des vecteurs de grille associés  $km(G1)$  et  $kn(G2)$ , où m n designent l'ordre de diffraction respectif, la propriété de diffraction de la structure de relief superposée de la première portion de surface (11; 22; 40) est déterminée par le vecteur de sommation  $kmn$  (GS1) des vecteurs de grille  $km(G1)$  et  $kn(G2)$ , la deuxième portion de surface (12; 23; 41 a 45) servant de référence mutuelle à la première portion de surface (11; 22; 40) contient une structure de grille G ayant le vecteur de grille associé k...

...qui est différente de la structure de grille superposée GS1 de la première portion de surface (11; 22; 40), et dans lequel les paramètres des vecteurs de grille  $km(G1)$  et  $kn(G2)$  utilisés pour la structure de relief de la première portion de surface (11; 22; 40) ont des valeurs telles que, pour une longueur d'onde choisie  $\lambda$ , le vecteur de sommation...

...GS1 est égal en grandeur et en direction au vecteur de grille  $k(G)$  de la deuxième portion de surface (12; 23; 41 a 45) de sorte que la première portion de surface (11; 22; 40) et la deuxième portion de surface (12; 23; 41 a 45) diffractent toutes deux une lumière (2) de la même couleur de la longueur d'onde choisie  $\lambda$  dans la direction d'observation (A; 20; 24; 27; 38; S; S') déterminée par le...  
...sommation  $kmn$  (GS1) et son angle de diffraction associé  $\theta_{kmn}$  de la grille superposée GS1, mais diffractent une lumière (2) de couleurs différentes dans d'autres directions...

... A surface pattern (10; 17; 39) having at least first and second surface portions (11; 12; 22; 23; 40 to 45) which are simultaneously in the field of vision of an observer, and contain microscopically fine light - diffracting relief structures disposed at the interface of two layers, and while illuminated with incident polychromatic light (1) the surface portions (11; 12; 22; 23; 40 to 45) light up in diffracted light (2) or become dark upon rotary and/or tilting movement depending on the direction of observation defined by the observer's eye, characterised in that at least the relief structure of the first surface portion (11; 22; 40) is formed by a superimposition GS1 of at least a first grating G1 and a second grating G2, with associated...

...and  $kn(G2)$ , where m n denote the respective order of diffraction, that the diffraction property of the superimposed relief structure of the first surface portion (11; 22; 40) is determined by the sum vector  $kmn$  (GS1) of the grating vectors  $km(G1)$  and  $kn(G2)$ , that the second surface portion (12; 23; 41 to 45) serving as mutual reference to the first surface portion (11; 22; 40) contains a grating structure G with the associated grating vector  $k(G)$  which is different from the superimposed grating structure GS1 of the first surface portion (11; 22; 40), and that the parameters of the grating vectors  $km(G1)$  and  $kn(G2)$  used for the relief structure of the first surface portion (11; 22; 40) have those values that for a selected wavelength  $\lambda$  the sum vector  $kmn$  (GS1) of the superimposed grating GS1 is equal in magnitude and direction to the grating vector  $k(G)$  of the second surface portion (12; 23; 41 to 45) so that the first surface portion (11; 22; 40) and the second surface portion (12; 23; 41 to 45) both diffract light (2) of the same colour of the selected wavelength  $\lambda$  in the direction of observation (A; 20; 24; 27; 38; S; S') determined by the sum vector  $kmn$  (GS1) and its associated diffraction angle  $\theta_{kmn}$  of the superimposed grating GS1 but diffract light (2) of different colours in other directions. Basic Derwent Week: 199736

29/5, K/19 (Item 16 from file: 350)  
DI ALCO (R) File 350: Derwent WPI X  
(c) 2008 Thomson Reuters. All rts. reserv.

0008061739 - Drawing available  
WPI ACC NO: 1997-157304/ 199715  
XRPX Acc No: N1997-129840

Information carrier with diffracting structures - employs diffraction pattern producing both pictures with bright and comparatively dim points, bright point of first picture being associated with dim point of second picture and vice versa

Patent Assignee: LANDIS & GYR AG (LANI); LANDIS & GYR TECHNOLOGY  
INNOVATION AG (LANI); OVD KIEGRAM AG (OVDK-N); OVD KIEGRAM GMBH  
(OVDK-N)

Inventor: STAUB R; TOMPKIN W R

Patent Family (11 patents, 21 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
EP 762238	A1	19970312	EP 1996107332	A	19960509	199715 B
AU 199662096	A	19970227	AU 199662096	A	19960816	199717 E
NO 199603406	A	19970224	NO 19963406	A	19960815	199718 E
CA 2179566	A	19970222	CA 2179566	A	19960620	199725 E
JP 9134111	A	19970520	JP 1996201372	A	19960731	199730 E
US 5886798	A	19990323	US 1996664453	A	19960617	199919 E
AU 715441	B	20000203	AU 199662096	A	19960816	200016 E
CN 1149163	A	19970507	CN 1996111844	A	19960815	200110 E
RU 2175777	C2	20011110	RU 1996116702	A	19960821	200208 E
CN 1122943	C	20031001	CN 1996111844	A	19960815	200554 E
CA 2179566	C	20060321	CA 2179566	A	19960620	200622 E

Priority Applications (no., kind, date): EP 1995810522 A 19950821

#### Patent Details

Number	Kind	Lang	Pg	Dwg	Filing	Notes
EP 762238	A1	DE	14	9		
Regional Designated States, Original: AT BE CH DE DK ES FI FR GB IE IT LI NL SE						
CA 2179566	A	EN				
JP 9134111	A	JA	11			
AU 715441	B	EN			Previously issued patent	AU 9662096
CA 2179566	C	EN				

#### Alerting Abstract EP A1

The carrier (2) includes a supporting foil (3), an intermediate layer (4), a first lacquer layer (5), a reflecting layer (6), a second lacquer layer (7) and an adhesive layer (8). The diffraction structures (9) are embedded in the lacquer layers and have microscopically fine relief structures, in the form of a lattices pattern (17) or grating.

When the pattern is illuminated by coherent light (10) in two separated directions, two pictures (21,22) of an object are produced, visible on a screen, and can be analysed by photo detectors. The figures have a bright point (19) and a dim point (20) which show they are grouped.

USE/ ADVANTAGE - Suitable for validating documents, banknotes, and credit cards. Pictures on, e.g. notes are visible in coherent light but not normally.

Title Terms/Index Terms/Additional Words: INFORMATION; CARRY; DIFFRACTED; STRUCTURE; EMPLOY; PATTERN; PRODUCE; PICTURE; BRIGHT; COMPARE; DIM POINT; FIRST; ASSOCIATE; SECOND; VI CE

#### Class Codes

International Classification (+ Attributes)

ECLA: B42D-015/10, G03H-001/04C, G03H-001/08, G06K-013/16, G06K-019/06C5, G06K-019/18

ICO: L42D-035:34

US Classification, Issued: 3592, 35922, 35929, 35933, 359567, 359569, 28386

File Segment: EngPI; EPI;

DWPI Class: T04; T05; V07; P76; P81; P84

Manual Codes (EPI/S-X): T04-C02; T05-J; V07-F02C

**Alerting Abstract** ...The carrier (2) includes a supporting foil (3), an intermediate layer (4), a first lacquer layer (5), a reflecting layer (6), a second lacquer layer (7) and an adhesive layer (8). The diffraction structures (9) are embedded in the lacquer layers and have microscopically fine relief structures, in the form of a lattices pattern (17) or grating...

...USE/ ADVANTAGE - Suitable for validating documents, banknotes, and credit cards. Pictures on, e.g. notes are visible in coherent light but not

normally.

## Original Publication Data by Authority

### Argentina

Assignee name & address:

#### Original Abstracts:

Information carrier with diffracting structures</br> The carrier (2) includes a supporting foil (3), an intermediate **layer** (4), a first lacquer **layer** ( 5 ), a reflecting **layer** (6), a second lacquer **layer** ( 7 ) and an adhesive **layer** ( 8 ). The diffraction structures (9) are embedded in the lacquer **layers** and have microscopically fine **relief structures** , in the form of a latices pattern (17) or grating.</br> When the pattern is illuminated by coherent light (10) in...

...An information carrier has at least one diffraction pattern which is formed from microscopically fine **relief** structures and which, upon **being** illuminated with coherent **light** , produces in two **spatially** separate directions, a first and a second image of an object. The images can be...

...picture element of the first image and vice-versa. Such information carriers are suitable as **security** elements for documents of all kinds such as, for example, banknotes, passes, **identity cards** , credit **cards** , etc., wherein at least a part of the **security** information is not **visible** under incoherent illumination conditions.

#### Claims:

...An information carrier having at least one diffractive pattern containing diffractive structures of microscopically fine **relief structures** , wherein **light** **diffracted** from **said** information carrier, upon **being** illuminated with coherent **light** , is rendered visible on a screen and produces a first image of an object in...

...of the second image is associated with a strong-light picture element of the first **image** , and wherein said **diffractive** pattern comprises the **superimposition** of one of a Fourier and kinoform **hologram** on a diffractive structure having an asymmetrical profile shape, serving as a carrier profile. Basic Derwent Week: **199715**

**29/ 5, K/ 24** (Item 21 from file: 350)

DI ALOG(R) File 350: Derwent WPI X

(c) 2008 Thomson Reuters. All rts. reserv.

0006200080 - Drawing available

WPI ACC NO: 1992-216897/ **199226**

XRPX Acc No: N1992-164687

**Security device and authenticatable item - has number of symbols which can be seen by naked eye, at least two sets of three symbols and all symbols in set are identical**

Patent Assignee: DE LA RUE & CO LTD THOMAS (DELR); DE LA RUE INT LTD (DELR); DE LA RUE LTD THOMAS (DELR)

Inventor: HASLOP J M

**Patent Family** (14 patents, 48 countries)

Patent Number	Ki nd	Date	Appli cation Number	Ki nd	Date	Updat e
WO 1992009444	A1	19920611	WO 1991GB2069	A	19911122	199226 B
AU 199189383	A	19920625	AU 199189383	A	19911122	199239 E
			WO 1991GB2069	A	19911122	
FI 199302335	A	19930521	WO 1991GB2069	A	19911122	199330 E
			FI 19932335	A	19930521	
EP 558574	A1	19930908	EP 1991920404	A	19911122	199336 E
			WO 1991GB2069	A	19911122	
GB 2265334	A	19930929	WO 1991GB2069	A	19911122	199339 E
			GB 19938924	A	19930429	
GB 2265334	B	19940420	WO 1991GB2069	A	19911122	199413 E
			GB 19938924	A	19930429	
AU 650304	B	19940616	AU 199189383	A	19911122	199429 E
US 5447335	A	19950905	WO 1991GB2069	A	19911122	199541 E
			US 199350181	A	19930610	
EP 558574	B1	19961016	EP 1991920404	A	19911122	199646 E
			WO 1991GB2069	A	19911122	

DE 69122767	E	19961121	DE 69122767	A	19911122	199701	E
			EP 1991920404	A	19911122		
			WO 1991GB2069	A	19911122		
RU 2060167	C1	19960520	WO 1991GB2069	A	19911122	199707	E
			RU 199343670	A	19911122		
ES 2095333	T3	19970216	EP 1991920404	A	19911122	199714	E
CA 2096655	C	19980512	CA 2096655	A	19911122	199830	E
FI 102952	B1	19990331	WO 1991GB2069	A	19911122	199919	E
			FI 19932335	A	19930521		

Priority Applications (no., kind, date): GB 199025390 A 19901122

#### Patent Details

Number	Kind	Lang	Pg	Dwg	Filing Notes
WO 1992009444	A1	EN	34		
National Designated States, Original: AT AU BB BG BR CA CH CS DE DK ES FI GB HU JP KR LK LU MC MG MN MV NL NO PL RO SD SE SU US					
Regional Designated States, Original: AT BE BF BJ CF CG CH CI CM DE DK ES FR GA GB GN GR IT LU ML MR NL SE SN TD TG					
AU 199189383	A	EN			PCT Application WO 1991GB2069
					Based on CPI patent WO 1992009444
FI 199302335	A	FI			PCT Application WO 1991GB2069
EP 558574	A1	EN	34		PCT Application WO 1991GB2069
					Based on CPI patent WO 1992009444
Regional Designated States, Original: AT BE CH DE DK ES FR GB GR IT LI LU NL SE					
GB 2265334	A	EN	1	1	PCT Application WO 1991GB2069
					Based on CPI patent WO 1992009444
GB 2265334	B	EN			PCT Application WO 1991GB2069
					Based on CPI patent WO 1992009444
AU 650304	B	EN			Previously issued patent AU 9189383
					Based on CPI patent WO 1992009444
US 5447335	A	EN	15	19	PCT Application WO 1991GB2069
					Based on CPI patent WO 1992009444
EP 558574	B1	EN	19	19	PCT Application WO 1991GB2069
					Based on CPI patent WO 1992009444
Regional Designated States, Original: AT BE CH DE DK ES FR GR IT LI LU NL SE					
DE 69122767	E	DE			Application EP 1991920404
					PCT Application WO 1991GB2069
					Based on CPI patent EP 558574
					Based on CPI patent WO 1992009444
RU 2060167	C1	RU	17	20	PCT Application WO 1991GB2069
ES 2095333	T3	ES			Application EP 1991920404
					Based on CPI patent EP 558574
CA 2096655	C	EN			
FI 102952	B1	FI			PCT Application WO 1991GB2069
					Previously issued patent FI 9302335

#### Alerting Abstract WO A1

The authenticatable item has a number of symbols which are identifiable to the naked eye and there are at least two sets of three symbols. All the symbols in a set are the same and do not overlap one another. They exhibit the same optical performance when viewed from a common **angle of inclination**.

The device can be mounted on a flexible planar **surface** using a heat or pressure-sensitive adhesive. The symbols in a set may vary regularly in their relative orientations.

ADVANTAGE - Replaces **hologram** as **security** medium for banknotes.

#### Equivalent Alerting Abstract US A

The authenticatable item carries a number of symbols identifiable to the naked eye. There are at least two sets of at least three symbols, where all the symbols within a set are identical, which are positioned in a non-overlapping, regular geometric arrangement.

It has at least one common viewing **angle of inclination**, exhibiting the same optical performance. The optical performance varies with **inclination viewing angle**.

USE - Esp. with banknotes to avoid reproduction.

**Title Terms/Index Terms/Additional Words:** **SECURE** ; DEVI CE; I TEM; NUMBER; SYMBOL; CAN; NAKED; EYE; TWO; SET; THREE; I DENTI CAL

**Class Codes**

International Classification (Main): B42D, B42D-015/00, B42D-015/10  
(Additional/Secondary): B41M-003/14, B44F-001/12  
ECLA: B42D-015/00C, B42D-015/10  
US Classification, Issued: 28391

File Segment: EngPI; ;  
DWPI Class: P75; P76; P78

Security device and authenticatable item..

**Original Titles:**

... **SECURITY** DEVI CE AND AUTHENTI CATABL E I TEM..

... DI SPOSI TI F DE **SECURI TE** ET OBJET POUVANT ETRE AUTHENTI FI E..

... **SECURITY** DEVI CE AND AUTHENTI CATABL E I TEM..

... DI SPOSI TI F DE **SECURI TE** ET OBJET POUVANT ETRE AUTHENTI FI E..

... **Security** device and authenticatable item..

... **SECURITY** DEVI CE AND AUTHENTI CATABL E I TEM

**Alerting Abstract** ...not overlap one another. They exhibit the same optical performance when viewed from a common **angle** of **inclination** .  
...

...The device can be mounted on a flexible planar **surface** using a heat or pressure-sensitive adhesive. The symbols in a set may vary regularly...

... ADVANTAGE - Replaces **hologram** as **security** medium for banknotes.

**Equivalent Alerting Abstract** ...It has at least one common viewing **angle** of **inclination** , exhibiting the same optical performance. The optical performance varies with **inclination** viewing **angle** .

**Title Terms/Index Terms/Additional Words:** **SECURE** ;

**Original Publication Data by Authority**

**Argentina**

Assignee name & address:

**Original Abstracts:**

An authenticatable item and **security** device carry a **number** of symbols (4A, 4B, 4C, 6A, 6B, 6C) identifiable to the naked eye, there being...

...are positioned in a non-overlapping, regular geometric arrangement, and at least one common viewing **angle** of **inclination** , exhibit **substantially** the **same** optical performance, the optical performance varying with **inclination** viewing **angle** .  
...

...An authenticatable item and **security** device carry a **number** of symbols (4A, 4B, **4C** , 6A, 6B, 6C) identifiable to the naked eye, there being at least two sets of...

...are positioned in a non-overlapping, regular geometric arrangement, and at least one common viewing **angle** of **inclination** , exhibit substantially the same optical performance, the optical **performance** varying with **inclination** viewing **angle** .

**29/5, K/26** (Item 23 from file: 350)  
DI ALOG (R) File 350: Derwent WPI X  
(c) 2008 Thomson Reuters. All rts. reserv.

0005005052 - Drawing available

WPI ACC NO: 1989-257152/ **198936**

**Document security grid structure preventing forgery - uses several partial surfaces providing different diffraction characteristics**

Patent Assignee: LGZ LANDIS & GYR ZUG AG (LANI)

Inventor: ANTES G SAXER C

**Patent Family** (6 patents, 9 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	
EP 330738	A	19890906	EP 1988119062	A	19881117	198936	B
AU 198930841	A	19890907				198944	E
US 4984824	A	19910115	US 1989311596	A	19890215	199106	E
EP 330738	B	19911113	EP 1988119062	A	19881117	199146	E
DE 3866230	G	19911219				199201	E
CA 1336779	C	19950822	CA 591661	A	19890221	199540	E

Priority Applications (no., kind, date): CH 1988805 A 19880303

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
EP 330738	A	DE	7	5	
Regional Designated States, Original:					AT CH DE FR GB LI
EP 330738	B	EN			
Regional Designated States, Original:					AT CH DE FR GB LI
CA 1336779	C	EN			

#### Alerting Abstract EP A

The grid structure (7) is sandwiched between a protective base layer (5) and an optical coating (4) and comprises a number of partial surfaces (8,9,10) each defined by a microscopic relief structure (12), which exhibit different optical diffraction effects upon visual examination.

The microscopic relief structure (12) has more than 10 lines per mm and at least one group (8,9) of the partial surfaces (8,9,10) have a max. width of 0.3 mm. This group (8,9) pref. define a specific geometric shape or an alphanumeric figure.

ADVANTAGE - Large number of different partial surfaces makes forgery of document very difficult.

#### Equivalent Alerting Abstract US A

The structure, which serves as a security element comprises surface portions with predetermined relief structures having spatial frequencies of over 10 lines/mm. Each surface portion is different from directly adjoining surface portions and at least some of the surface portions have a maximum dimension of less than 0.3 mm.

To the naked eye, the pattern of surface portions on the document appears as a mesh of dots and lines. However, to an examiner with a magnifying device, the dots and lines appear as numbers, characters or other graphic features.

USE - A document with an embossed macroscopic structure and acting through optical diffraction. @6pp@

**Title Terms/**Index Terms/Additional Words: DOCUMENT; SECURE; GRID; STRUCTURE; PREVENT; FORGE; SURFACE; DIFFRACTED; CHARACTERISTICS

#### Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B42D-0015/10	A	I		R	20060101
D21H-0021/48	A	I		R	20060101
G02B-0005/18	A	I	L	R	20060101
G03H-0001/18	A	I	L	R	20060101
G06K-0019/06	A	I	L	R	20060101
G06K-0019/10	A	I	L	R	20060101
B42D-0015/10	C	I		R	20060101
D21H-0021/40	C	I		R	20060101
G02B-0005/18	C	I	L	R	20060101
G03H-0001/18	C	I	L	R	20060101
G06K-0019/06	C	I	L	R	20060101
G06K-0019/10	C	I	L	R	20060101

ECLA: B42D-015/10, D21H-021/48

ICO: L42D-031:08, L42D-031:14, L42D-035:22, L42D-035:44

US Classification, Current Main: 283-091000; Secondary: 283-904000,

359-558000

US Classification, Issued: 28391, 283904, 359558

File Segment: EngPI; ;  
DWPI Class: P76; P78

**Document security grid structure preventing forgery...**

**...uses several partial surfaces providing different diffraction characteristics**

**Alerting Abstract** ...The grid structure (7) is sandwiched between a protective base **layer** (5) and an optical coating (4) and comprises a number of partial **surfaces** (8,9,10) each defined by a microscopic **relief** structure (12), which exhibit different optical diffraction effects upon visual examination...

...The microscopic **relief** structure (12) has more than 10 lines per mm and at least one group (8,9) of the partial **surfaces** (8,9,10) have a max. width of 0.3 mm This group (8,9...

...ADVANTAGE - Large number of different partial **surfaces** makes forgery of document very difficult.

**Equivalent Alerting Abstract** ...The structure, which serves as a **security** element comprises **surface** portions with predetermined **relief** structures having spatial frequencies of over 10 lines/mm Each **surface** portion is different from directly adjoining **surface** portions and at least some of the **surface** portions have a maximum dimension of less than 0.3 mm..

...To the naked eye, the pattern of **surface** portions on the document appears as a mesh of dots and lines. However, to an...

...USE - A document with an embossed **macroscopic** structure and acting through optical diffraction. @6pp@

**Title Terms.../Index Terms/Additional Words:** **SECURE** ; ...

... **SURFACE** ;

**Original Publication Data by Authority**

**Argentina**

Assignee name & address:

**Original Abstracts:**

A document (1) has a **macroscopic** structure (7) which is engraved in a **substrate** (3), is difficult to falsify, is provided with an optically effective coating (4) and is protected under a protective **layer** (5). The structure (7) consists of several partial **surfaces** (8, 9, 10) which are defined by a microscopic **relief** structure (12, 12') and which are distinguished by optical diffraction effects under visual observation. Some of the partial **surfaces** (8, 9) are smaller than 0.3 mm and can occur individually or in a row in the structure (7), spacings between the partial **surfaces** (8, 9) also being less than 0.3 mm The document (1) shows the unprepared...

...A document with an embossed **macroscopic** structure and acting through optical diffraction is disclosed. The structure, which serves as a **security** element comprises a plurality of **surface** portions with predetermined **relief** structures having spatial frequencies of over 10 lines/mm Each **surface** portion is different from directly adjoining **surface** portions and at least some of the **surface** portions have a maximum dimension of less than 0.3 mm To the naked eye, the pattern of **surface** portions on the document appears as a mesh of dots and lines. However, to an...

**Claims:**

The grid structure (7) is sandwiched between a protective base **layer** (5) and an optical coating (4) and comprises a number of partial **surfaces** (8,9,10) each defined by a microscopic **relief** structure (12), which exhibit different optical diffraction effects upon visual examination...

...The microscopic **relief** structure (12) has more than 10 lines per mm and at least one group (8,9) of the partial **surfaces** (8,9,10) have a max. width of 0.3 mm This group (8,9...

...1. A document having a **macroscopic** structure (7) which is impressed over a large area and which has a diffraction-optical effect and which is composed of numerous **surface** portions (8, 9, 10) with predetermined **relief** structures (12, 12') having a diffraction-optical effect, with spatial frequencies of more than 10 lines /mm wherein each **surface** portion (8, 9, 10) differs in its **relief** structure (12, 12') from those of the directly adjoining **surface** portion (8, 9, 10), characterised in that at least one group (8, 9) of the **surface** portions (8, 9, 10) is of a largest dimension of less than 0.3 mm Basic Derwent Week: **198936**

**29/ 5, K/ 27** (Item 24 from file: 350)  
 DI ALOG(R) File 350: Derwent WPI X  
 (c) 2008 Thomson Reuters. All rts. reserv.

0004550437

WPI ACC NO: 1988-300859/ **198843**

XRAM Acc No: C1988-133292

XRPX Acc No: N1988-228350

**Decorative surface structure mfr. e.g. watch face - using a metallic master model carrying macroscopic relief pattern in form of holographic or diffracting structures**

Patent Assignee: BLOESCH WAG (BLOS-N)

Inventor: BLOESCH E

**Patent Family** (3 patents, 13 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
EP 287746	A	19881026	EP 1987810255	A	19870422	198843 B
EP 287746	B	19901024	EP 1987810255	A	19870422	199043 E
			EP 1987810255	A	19870422	
DE 3765776	G	19901129				199049 E

Priority Applications (no., kind, date): EP 1987810255 A 19870422

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
EP 287746	A	EN	4	0	
Regional Designated States, Original: AT BE CH DE ES FR GB GR IT LI LU NL SE					
EP 287746	B	EN			
Regional Designated States, Original: CH DE FR GB IT LI					

#### Alerting Abstract EP A

Decorative **surface** structure is formed by: making a metallic master model of the required **surface** where a **macroscopic relief** is combined with element(s) carrying a **macroscopic relief** pattern in the form of holographic or diffracting structures; forming a polymer casting of the master model **surface**; applying a thin conductive **layer** to the **surface** of the casting and electroforming the polymer casting to produce a metallic **replica** of pref. **surface**. Pref. an additional thin **layer** of e.g. Au is applied to enhance the decorative effect.

USE/ ADVANTAGE - Esp. in mfr. of watch faces, jewellery, medals. Wide range of high quality decorated **surfaces** can be obt'd..

**Title Terms/ Index Terms/ Additional Words:** DECORATE; **SURFACE**; STRUCTURE; MANUFACTURE; WATCH; FACE; METALLIC; MASTER; MODEL; CARRY; **MACROSCOPIC**; **RELIEF**; PATTERN; FORM; **HOLOGRAM**; **DIFRACTED**

#### Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B44C-0003/04	A	I	R	20060101
B44F-0001/14	A	I	R	20060101
B44F-0007/00	A	I	R	20060101
C25D-0001/10	A	I	R	20060101
G04B-0045/00	A	I	R	20060101
B44C-0003/00	C	I	R	20060101
B44F-0001/00	C	I	R	20060101



B44F-0007/00 C I R 20060101  
C25D-0001/00 C I R 20060101  
G04B-0045/00 C I R 20060101  
ECLA: B44C-003/04B, B44F-001/14, B44F-007/00, C25D-001/10, G04B-045/00P

File Segment: CPI; EngPI; EPI  
DWPI Class: A32; A86; M1; S04; P78  
Manual Codes (EPI/S-X): S04-A04B  
Manual Codes (CPI/A-M): A11-B04; A11-C04B1; A12-F; A12-H05; A12-W M1-D

**Decorative surface structure mfr. e.g. watch face...**  
**...using a metallic master model carrying macroscopic relief pattern in**  
**form of holographic or diffracting structures**

**Original Titles:**

Methode zur Herstellung einer dekorativen Oberflaechenstruktur mit einem  
**Hologramm** oder einem Beugungsmuster...

...A method for producing a decorative **surface** structure with  
**holographic** or diffraction pattern...

...Methode pour la fabrication d'une **surface** en **relief** decorative, avec  
un hologramme ou un motif de diffraction...

...Verfahren zur Herstellung einer dekorativen Oberflaechenstruktur mit  
einem **Hologramm** oder einem Beugungsmuster...

...A method for producing a decorative **surface** structure with  
**holographic** or diffraction pattern...

...Procede pour la fabrication d'une **surface** en **relief** decorative, avec  
un hologramme ou un motif de diffraction

**Alerting Abstract** ...Decorative **surface** structure is formed by: making  
a metallic master model of the required **surface** where a **macroscopic**  
**relief** is combined with element(s) carrying a **macroscopic relief**  
pattern in the form of holographic or diffracting structures; forming a  
polymer casting of the master model **surface**; applying a thin conductive  
**layer** to the **surface** of the casting and electroforming the polymer  
casting to produce a metallic **replica** of pref. **surface**. Pref. an  
additional thin **layer** of e.g. Au is applied to enhance the decorative  
effect...

...ADVANTAGE - Esp. in mfr. of watch faces, jewellery, medals. Wide range of  
high quality decorated **surfaces** can be obt'd..

**Title Terms**.../Index Terms/Additional Words: **SURFACE** ; ...

... **MACROSCOPIC** ; ...

... **RELIEF** ; ...

... **HOLOGRAM** ;

**Original Publication Data by Authority**

**Argentina**

Assignee name & address:

**Original Abstracts:**

The method of producing a decorative **surface** structure comprises the  
steps of making a metallic master model of the required **surface** where a  
**macroscopic relief** is combined with one or more elements carrying a  
**macroscopic relief** pattern in the form of **holographic** or diffracting  
structures, forming a casting of the **surface** of the master model in a  
suitable polymeric material, applying a thin conducting **layer** to the  
**surface** of the casting, and then electroforming the polymeric casting to  
produce a metallic **replica** of the desired **surface**. In the decorative  
**surface** structure formed by the master model and casting steps described,  
the application of the thin conducting **layer** provides the decorative  
effect, and the casting with its conducting **layer** provides the decorative  
**surface** structure. A thus decorated **surface**, for example a watch

face, has an improved quality and range of decorations as well...

**Claims:**

Decorative **surface** structure is formed by: making a metallic master model of the required **surface** where a **macroscopic relief** is combined with element(s) carrying a **macroscopic relief** pattern in the form of holographic or diffracting structures; forming a polymer casting of the master model **surface**; applying a thin conductive **layer** to the **surface** of the casting and electroforming the polymer casting to produce a metallic **replica** of pref. **surface**. Pref. an additional thin **layer** of e.g. Au is applied to enhance the decorative effect...

... eines makroskopischen Reliefmusters mit einem oder mehreren Elementen mit einem mikroskopischen Reliefmuster in Form von **holographischen** oder beugenden Strukturen zusammengesetzt ist. ...

Basic Derwent Week: **198843** ...

File Segment: CPI; EngPI; EPI  
DWPI Class: A89; G06; T03; P81; P82; P83  
Manual Codes (CPI/A-M): A12-L03; G06-D; G06-E

**Printing separate holograms on two sides of tape...**

... hologram **axes inclined to plane of object and reference beams, with transparent vinyl tape**

**Original Titles:**

**Holographisches** Aufzeichnungsmedium und Verfahren zu dessen Herstellung  
...

... Process of producing double-sided **holographic replicas**

**Alerting Abstract** ... An information recording medium of transparent sheet has separate **relief** patterns on its opposite faces, at least one of these patterns being a **hologram**. Pref. one of the **relief** patterns comprises an inclined, eccentric **hologram** formed by an object beam and a reference beam which define a plane at an **inclined angle** to the longitudinal axis of the **hologram**. Alternatively, each of the separate **relief** patterns comprises an inclined, eccentric **hologram** formed by an object and a **relief** beam defining a plane which is inclined relative to the longitudinal axis; when a monochromatic reading beam shines through the sheet these two opposed **relief** patterns provide reconstructed pictures which are phase-displaced. The sheet is pref. of a casting...

**Title Terms.../Index Terms/Additional Words:** **HOLOGRAM**;

**Original Publication Data by Authority**

**Argentina**

Assignee name & address:

**Original Abstracts:**

A double-sided, **holographic replica** comprises a web of transparent, thermoplastic, sheet material having a separate series of off-axis-recorded, phase-modulated **holograms pressed** into each of the opposite **surfaces, respectively**, of the web. Oppositely disposed (front and rear) **holograms are** such as to provide angularly displaced reconstructed images, respectively, when a monochromatic read-out beam is transmitted through the web. The double-sided **holographic replica is** made by first pressing the web and a first **holographic master** between a first pair of heated calender rollers to form one **replica on one surface** of the web, and then pressing the web, while thermoplastically adhered to the first master, and a second **holographic master** between a second pair of heated calender rollers to form another **replica on the other surface** of the web. The first and second masters are subsequently cooled and separated from the web.

26/3,K/1 (Item 1 from file: 348)  
DIALOG(R) File 348: EUROPEAN PATENTS  
(c) 2008 European Patent Office. All rights reserved.

01396995

Optical information carrier  
Optischer Informationsträger  
Porteur d'informations optiques

PATENT ASSIGNEE:

OVD Kinegram AG (2927430), Gubelstr. 22, 6301 Zug, (CH), (Proprietor designated states: all)

INVENTOR:

Tompkin, Wayne Robert, Oesterliwaldweg 2, 5400 Baden, (CH)  
Staub, Rene, Schmiedstrasse 6, 6330 Cham (CH)

LEGAL REPRESENTATIVE:

LOUIS, POHLAU, LOHRENTZ (100394), Postfach 3055, 90014 Nurnberg, (DE)

PATENT (CC, No, Kind, Date): EP 1182055 A2 020227 (Basic)  
EP 1182055 A3 040811  
EP 1182055 A3 040811  
EP 1182055 B1 070321

APPLICATION (CC, No, Date): EP 2001122061 961114;

PRIORITY (CC, No, Date): CH 953369 951128; CH 953567 951218

DESIGNATED STATES: AT; CH; DE; ES; FI; FR; GB; IT; LI; NL; SE

RELATED PARENT NUMBER(S) - PN (AN):

EP 871574 (EP 96939036)

INTERNATIONAL PATENT CLASS (V7): B42D-015/10; G06K-019/16; G02B-005/18;  
G03H-001/02

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

B42D-0015/10	A I F B	20060101	20011228	H	EP
G06K-0019/16	A I L B	20060101	20011228	H	EP
G02B-0005/18	A I L B	20060101	20011228	H	EP
G03H-0001/02	A I L B	20060101	20011228	H	EP

ABSTRACT WORD COUNT: 174

NOTE:

Figure number on first page: 11

LANGUAGE (Publication, Procedural, Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200209	326
CLAIMS B	(English)	200712	451
CLAIMS B	(German)	200712	369
CLAIMS B	(French)	200712	493
SPEC A	(English)	200209	7352
SPEC B	(English)	200712	7460
Total word count - document A			7679
Total word count - document B			8773
Total word count - documents A + B			16452

... SPECIFICATION an optical diffraction structure are suitable for example for increasing the level of safeguard against **forgery** and for conspicuously identifying articles of all kinds and can be used in particular in...

... second hologram is stored in a partially metallised layer which is disposed thereover. The two **holograms** are arranged at a small spacing and are visible at different viewing angles. There is no correlation of any kind between the two **holograms**. An optical information carrier of that kind can be **copied** with conventional **holographic** methods.

European patent specification EP 012 375 discloses an optical information carrier in which three...

... colour point of view.

British patent specification GB 2 237 774 discloses production processes for **holograms**, in which two individual **holograms** are glued together or in which a print layer is applied directly over the **hologram**. Specific optical effects which could arise out of the interplay of the two **holograms** or...

... laid-open application (DE-OS) No. 23 50 109 discloses a foil serving as

a **holographic** recording medium. Formed both in the underside and in the top side of the foil are relief patterns which represent items of **holographic** information. The **holograms** are recorded using a special procedure so that the **holograms** which are stored on both sides of the foil can be read off separately. Optical correlation between the **holograms** on one side and the **holograms** on the other side is prevented as far as possible by virtue of the special...

... object of the present invention is to propose an optical information carrier which has optical **security** features that cannot be **copied** using **holographic** methods, and which can be easily produced in large numbers.

That object is attained on...

... optical effects. The optically effective structures 6, 7 can be formed by shaping microscopic or **macroscopic relief** structures in the underside and top side 4 and 5 respectively and/or by applying... A microlens 19, in the present case a Fresnel lens, in the configuration of a **macroscopic relief** structure, is formed into the surface 5 as the structure 7 (Figure 1). Nine surface...

... the relief structures 10 is incident on the photodetectors of the reading device. The lacquer **layer** 29 advantageously comprises the same material as the carrier foil 3 so that it has...

... same refractive index as the carrier foil 3. The concealed information is extremely difficult to **copy**, even with **holographic** methods.

Figure 12 is a view which is not to scale of an individualisable optical...

... in the underside 4 and the top side 5 of the carrier foil 3 are **surface** regions with different, microscopically fine relief structures 10 and 15 respectively of optical gratings which can be separated by smooth regions 46 and 47 respectively. The cover **layer** 9 contains visually easily discernible gaps 49 which are separated by surface portions 50 so...

... SPECIFICATION an optical diffraction structure are suitable for example for increasing the level of safeguard against **forgery** and for conspicuously identifying articles of all kinds and can be used in particular in relation to **security** and bond documents, passes, payment means and similar articles to be safeguarded.

European patent specification EP 328 086 discloses an optical information carrier in which a first **hologram** is stored in a layer which is metallised over its entire **surface**, and a second **hologram** is stored in a partially metallised **layer** which is disposed thereover. The two **holograms** are arranged at a small spacing and are visible at different viewing angles. There is no correlation of any kind between the two **holograms**. An optical information carrier of that kind can be **copied** with conventional **holographic** methods.

European patent specification EP 012 375 discloses an optical information carrier in which three grating **layers** with three colour component images are arranged in mutually directly superimposed relationship. The production of that information carrier is expensive as the three grating **layers** must be arranged accurately so as to afford an image which is satisfactory from the colour point of view.

British patent specification GB 2 237 774 discloses production processes for **holograms**, in which two individual **holograms** are glued together or in which a print **layer** is applied directly over the **hologram**. Specific optical effects which could arise out of the interplay of the two **holograms** or the **hologram** and the print **layer** are not discussed.

German laid-open application (DE-OS) No. 23 50 109 discloses a...

... 170 832 B1 specifies a hot-stamping foil comprising a carrier foil and a transfer **layer** detachable therefrom. The transfer layer is a laminate of at least three **layers**, a first **layer** being in direct contact to the carrier foil, an adhesive **layer** to attach the transfer foil to a **substrate** and enclosed between the first **layer** and the adhesive **layer** a diffraction **layer** with a **holographically** effective pattern is provided. The first **layer** is composed of areas of a non transparent inscribable lacquer **layer** with windows filled with a clear lacquer through which the **holographically** effective pattern is visible.

The object of the present invention is to propose an optical

information carrier which has optical **security** features that cannot be **copied** using **holographic** methods, and which can be easily produced in large numbers. That object is attained on...

...addition, the shaped top side of the carrier foil structures is partially covered by cover **layers** forming a top structure and the cover **layers** are arranged in a predetermined manner to store concealed optically machine-readable information.  
The invention...

...optical effects. The optically effective structures 6, 7 can be formed by shaping microscopic or **macroscopic relief** structures in the underside and top side 4 and 5 respectively and/or by applying...

...A microlens 19, in the present case a Fresnel lens, in the configuration of a **macroscopic relief** structure, is formed into the surface 5 as the structure 7 (Figure 1). Nine surface...the relief structures 10 is incident on the photodetectors of the reading device. The lacquer **layer** 29 advantageously comprises the same material as the carrier foil 3 so that it has...

...same refractive index as the carrier foil 3. The concealed information is extremely difficult to **copy**, even with **holographic** methods.  
Figure 12 is a view which is not to scale of an individualisable optical...

...in the underside 4 and the top side 5 of the carrier foil 3 are **surface** regions with different, microscopically fine relief structures 10 and 15 respectively of optical gratings which can be separated by smooth regions 46 and 47 respectively. The cover **layer** 9 contains visually easily discernible gaps 49 which are separated by surface portions 50 so...

**26/3, K/5 (Item 5 from file: 348)**

DIALCOG(R) File 348: EUROPEAN PATENTS

(c) 2008 European Patent Office. All rts. reserv.

01043472

**M ICROGRAPHI C DEVI CE**

**M ICROGRAPHI SCHE S GERAT**

**DI SPOSI TI F M ICROGRAPHI QUE**

PATENT ASSI GNEE:

COMMONWEALTH SCI ENTI FI C AND I NDUSTRI AL RESEAR CH ORGANI SATI ON, (200836),

Li mestone Avenue, Campbell, Australian Capital Territory 2612, (AU),

(Proprietor designated states: all)

I NVENTOR:

LEE, Robert, Arthur, 13 Wil kinson Street, East Bur wood, VI C 3151, (AU)

LEGAL REPRESENTATIVE:

Brown, John D. (28811), FORRESTER & BOEHMERT Pettenkoferstrasse 20-22,

80336 Munchen, (DE)

PATENT (CC, No, Ki nd, Date): EP 1023187 A1 000802 (Basic)

EP 1023187 B1 070307

WO 1999017941 990415

APPLI CATI ON (CC, No, Dat e): EP 98946157 980930; WO 98AU821 980930

PRI ORI TY (CC, No, Dat e): AU 97PO9572 971002

DESIG NATED STATES: DE; FR; GB

I NTERNATI ONAL PATENT CLASS (V7): B44F-001/12; B42D-015/10

I NTERNATI ONAL CLASSI FI CATI ON (V8 + ATTRI BUTES):

I PC + Level Value Position Status Version Action Source Office:

B44F-0001/12 A I F B 20060101 19990427 H EP

B42D-0015/10 A I L B 20060101 19990427 H EP

NOTE:

No A-document published by EPO

LANGUAGE (Publication, Procedural, Application): English; English; English

FULLTEXT AVAI LABI LI TY:

Available Text	Language	Update	Word Count
CLAI MS B	(English)	200710	574
CLAI MS B	(German)	200710	523
CLAI MS B	(French)	200710	703
SPEC B	(English)	200710	2794
Total word count - document A			0
Total word count - document B			4594

Total word count - documents A + B 4594

... SPECIFICATI ON graphic elements line art or images represented in microscopic size in repeated regions of its **surface** relief structure. The device may be used in a number of different applications, and it has particular applicability as an anti- **forgery security** device on bank notes, credit **cards**, cheques, share certificates and other similar documents.

Recent improvements in reproduction technology have made it easier for a person to forge a **copy** of a valuable document. Various different types of **security** devices are available to protect against **copying**. One such type of **security** device is a **hologram** of the type which has been applied to VI SA(TM)) and MasterCard(TM)) credit **cards** since 1984. When viewed under appropriate illumination conditions (best seen with a point light source such as a single incandescent globe), **holograms** generate an image which appears to change as the angle of observation changes. When not illuminated, the **hologram** as a silver appearance. **Holograms** provide protection against colour photocopying and similar reproductive techniques because such reproductive techniques cannot reproduce the ability to generate images which differ when viewed from different angles.

**Holograms** are a member of a class of **security** devices referred to as optically variable devices (OVDs). Newer and more **secure** optically variable devices have been developed, including dot matrix **hologram** technology (EP0 467 601 A2), KI NEGRAM(TM)) technology (EP105099, EP330738, EP375833) as first used on...

...TM)) travellers cheques and Hungarian bank notes in 1997.

OVDs typically consist of a thin **layer** of a metallised foil applied by means of an adhesive to a **substrate**. A typical OVD appears silver in colour, and this can adversely affect the contrast in...

...optically variable effects produced by the OVD, with a resulting reduction in the degree of **security** afforded.

Most OVDs can be simulated to some extent by **holographic copying** techniques. While **holographic copying** equipment is not as readily available as colour photocopiers, the technology is available to the determined forger. Simulations made using **holographic copying** typically do not incorporate all of the **security** features of original OVDs, and they typically have a lower quality, but they are often of sufficient quality to mislead unsuspecting members of the public. It is therefore desirable for **security** devices **copied** by **holographic** techniques to be obviously different from the original.

It is an object of the present invention to provide some improvements in **security** device technology.

According to the present invention, there is provided a micrographic device having a **surface** relief structure which has a plurality of regions,

wherein the regions include grey scale regions...

...too small to be separately resolvable to the human eye, but which together generate a **macroscopic** graphic, line art or text image which can be observed by the human eye,

each...

...each structure type having diffuse scattering physical characteristics which provide a particular level of diffuse **scattering** of incident **light**,

the different grey scale region structure types having, by reason of their differing diffuse scattering...

...line art or text image composed of different grey scales.

The micrographic device has a **surface** relief structure which has a plurality of **light scattering** regions, each region having a number of structures which **scatter** incident **light** in different directions, so that the region appears to an observer to be a particular...

...the device to simulate an optically invariable "printed" appearance, which is not capable of being **copied** by **holographic** techniques.

The particular shade of brown or grey generated by a light scattering region is...

...the number of scattering centres and feature sizes of those scattering centres within a given **surface** area.

The particular resolution of the "printed" appearance depends upon the size of each scattering...

...by 120 .(micro).m or less.

It is preferred that the device include both diffractive **surface** relief structure regions and scattering regions, so that, under appropriate illumination conditions, both optically variable...

...is illuminated by a light source and viewed by an observer, the observer sees in **macroscopic** form an image which corresponds with a microscopic image represented in the surface **relief** structure of some or all of the regions.

It is preferred that the device also...

...with a surface region of approximately 30 .(micro).m x 30 .(micro).m In a **macroscopic** image generated by light illuminating a surface relief structure into which the microscopic pigeon shape...

...pigeon shape has been embossed into a large number of different areas of the surface **relief** structure corresponding with the **macroscopic** shape of the pigeon, wherein each embossing represents a single pixel of the **macroscopic** image, the result after illumination will be a **macroscopic** image of the pigeon. This is of course a special case, and the dark image...

...regions are separate from diffusely scattering surface regions. However, it is possible that a single **surface** region may include both diffuse scattering and diffractive effects. A single region may be a hybrid region which includes both periodic **surface** structure, which has diffractive effects, and graphic elements, line art or images which have diffuse...

...symbols to generate an optical effect which includes both diffractive and diffuse scattering components.

Micrographic **surface** structure regions according to the invention have a number of different practical applications including the following:

1. They can be used as an additional level **security** feature which can be checked using high speed microscopic machine vision systems.
2. The non-periodic structure of the micrographic regions means that **holographic** or contact **copying** of the structures is impossible to achieve.
3. Because diffusely scattering micrographic regions are impossible to **copy holographically**, the differences in grey scale level of the micrographic grey scale elements become indistinguishable on a **copied** device and therefore any macroscopic graphic feature constructed out of at least two types of micrographic regions will be unobservable on the **copied** device.
4. Micrographic regions can therefore be used as a unique background optically invariable **security** feature on diffractive images originated using electron beam lithography techniques.
5. Because individual micrographic **surface** structures appear many hundreds or even thousands of times as a background to the diffractive...

... CLAIMS B1

1. A micrographic device having a surface **relief** structure which has a plurality of regions,

wherein the regions include grey scale regions which...

...too small to be separately resolvable to the human eye, but which together generate a **macroscopic** graphic, line art or text image which can be observed by the human eye,

each...

...each structure type having diffuse scattering physical characteristics

which provide a particular level of diffuse **scattering** of incident light ,

the different grey scale region structure types having, by reason of their differing diffuse scattering...

...and viewed by an observer from any direction whereby the grey scale regions generate the **macroscopic** graphic, line art or text image composed of different grey scales.

2. A micrographic device...

...more graphic elements, line art or text images represented in microscopic size in its surface **relief** structure.

3. A micrographic device according to claim 2 wherein each microscopic region is of...

...is illuminated by a light source and viewed by an observer, the observer sees in **macroscopic** form an image which corresponds with a microscopic image represented in the surface **relief** structure of some or all of the regions.

7. A micrographic device according to any...

**26/3, K/7 (Item 7 from file: 348)**

DIALCOG(R) File 348: EUROPEAN PATENTS

(c) 2008 European Patent Office. All rts. reserv.

00875254

**SURFACE PATTERN**

**OBERFLACHENMUSTER**

**DIAGRAMME DE SURFACE**

PATENT ASSIGNEE:

OVD Kinegram AG (2927430), Gubelstr.22, 6301 Zug, (CH), (Proprietor designated states: all)

INVENTOR:

STAUB, Rene, Schmidstrasse 6, CH-6330 Cham (CH)

TOUPKIN, Wayne, Robert, Rebhaldenweg 1, CH-5408 Ennetbaden, (CH)

LEGAL REPRESENTATIVE:

LOUIS, POHLAU, LOHRENTZ & SEGETH (100394), Postfach 3055, 90014 Nurnberg, (DE)

PATENT (CC, No, Kind, Date): EP 876629 A1 981111 (Basic)

EP 876629 B1 020814

WO 9727504 970731

APPLICATI ON (CC, No, Date): EP 96922815 960617; WO 96EP2599 960617

PRIORI TY (CC, No, Date): CH 96210 960126

DESIGNATED STATES: CH; DE; FR; GB; LI; NL

INTERNATI ONAL PATENT CLASS (V7): G02B-005/18

NOTE:

No A-document published by EPO

LANGUAGE (Publication, Procedural, Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
----------------	----------	--------	------------

CLAIMS B	(English)	200233	1516
----------	-----------	--------	------

CLAIMS B	(German)	200233	1356
----------	----------	--------	------

CLAIMS B	(French)	200233	1659
----------	----------	--------	------

SPEC B	(English)	200233	7735
--------	-----------	--------	------

Total word count - document A	0
-------------------------------	---

Total word count - document B	12266
-------------------------------	-------

Total word count - documents A + B	12266
------------------------------------	-------

...SPECIFICATI ON with relatively great profile heights has the result that the grating structure GS can be **copied holographically** only with extreme difficulty. In general only symmetrical profile shapes, in particular sinusoidal shapes, can be achieved with **holographic** methods. In the event of imitation by means of **holographic** methods, intermodulation effects occur, which result in the known speckle patterns, as are known for example from rainbow **holograms**. The result of those intermodulation effects is also that an entire range of very slight...

...than with an optimised grating structure GS.

In addition, in the event of attempts at **copying** by means of **holographic** methods intermodulation terms generally occur between the



various diffraction orders of the grating structures GS...

...structures GS are preferably microscopically fine relief structures which are formed for example in the **surface** of a lacquer **layer** and which are covered with a protective lacquer **layer**. A preferably metallic **layer** or also a dielectric **layer** with a high diffractive index can be embedded between the lacquer **layer** and the protective lacquer **layer**, to enhance the brilliance. The diffraction-effective relief structures are therefore disposed in the interface...

...height of about 600 nm so that, as can be seen from Figure 4, the **light** is **diffracted** as uniformly as possible into the seven diffraction orders  $j = -3, -2, -1, 0, 1, \dots$

...surface portion 12 contains a second grating structure GS2 which is also produced by the **superimposition** of the first grating ...in a predetermined diffraction angle range as an achromatic surface. In other words, the polychromatic **light** is **diffracted** virtually independently of the wavelength ( $\lambda$ ) into a given diffraction angle range. Colour effects which...

...known from conventional gratings can be produced with a grating structure GS3 formed by the **superimposition** of the two gratings G5 and G6. Figure 11a shows the  $x$ -plane of the grating G5. The polychromatic **light** which is **diffracted** into the zero diffraction order appears coloured, for example blue, to the human eye, even if a larger proportion of blue **light** is **diffracted** into the diffraction orders  $j = -1$  and  $+1$ , than into the zero diffraction order. The...

...CLAIMS with incident polychromatic light (1) the surface portions (11; 12; 22; 23; 40 to 45) **light** up in **diffracted light** (2) or become dark upon rotary and/or tilting movement depending on the direction of observation defined by the observer's eye, wherein

at least the **relief** structure of the first surface portion (11; 22; 40) is formed by a **superimposition** GS1 of at least a first grating G1 and a second grating G2, with associated...

...where  $m$   $n$  denote the respective order of diffraction,

the diffraction property of the superimposed **relief** structure of the first surface portion (11; 22; 40) is determined by the sumvector  $\mathbf{km}$ . illuminated with incident polychromatic light (1) the surface portions (40; 41; 42; 43; 44; 45) **light** up in **diffracted light** (2) or become dark upon rotary and/or tilting movement depending on the direction of...

...41; 42; 43; 44; 45) have a different grating structure GS(u) formed as a **superimposition** of a first grating G1 with an associated grating vector  $\mathbf{kn}$ ))(G1) being the same...

26/3, K/9 (Item 9 from file: 348)  
 DIALOG(R) File 348: EUROPEAN PATENTS  
 (c) 2008 European Patent Office. All rights reserved.

00864114

OPTICALLY VARIABLE SURFACE PATTERN  
 OPTISCH VARIABLE FLACHENMUSTER  
 MODELE DE SURFACE VARIABLE SUR LE PLAN OPTIQUE  
 PATENT ASSIGNEE:

OVD Kiengram AG, (2927430), Gubelstr. 22, 6301 Zug, (CH), (Proprietor designated states: all)

INVENTOR:

STAUB, Rene, Schmiedstrasse 6, CH-6330 Cham (CH)  
 TOMPKIN, Wayne, Robert, Rebhaldenweg 1, CH-5408 Ennetbaden, (CH)

LEGAL REPRESENTATIVE:

LOUIS, POHLAU, LOHRENTZ & SEGETH (100394), Postfach 3055, 90014 Nurnberg, (DE)

PATENT (CC, No, Kind, Date): EP 868313 A1 981007 (Basic)  
 EP 868313 B1 000419

WO 9719821 970605  
 APPLICATION (CC, No, Date): EP 96939861 961120; WO 96EP5114 961120  
 PRIORITY (CC, No, Date): CH 953368 951128; EP 96102497 960220  
 DESIGNATED STATES: AT; CH; DE; FI; FR; GB; LI  
 EXTENDED DESIGNATED STATES: SI  
 INTERNATIONAL PATENT CLASS (V7): B42D-015/10  
 NOTE:

No A-document published by EPO  
 LANGUAGE (Publication, Procedural, Application): English; English; English  
 FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200016	419
CLAIMS B	(German)	200016	338
CLAIMS B	(French)	200016	479
SPEC B	(English)	200016	5484
Total word count - document A			0
Total word count - document B			6720
Total word count - documents A + B			6720

... SPECIFICATI ON narrower surface portions which are arranged in parallel side-by-side relationship, with the same **angle of inclination** ( $\alpha_1$ ) and ( $\alpha_2$ ) respectively. This organisation which replaces the original surface portion is a **relief** structure and in cross-section is of a sawtooth-shaped profile whose grating period and profile height are matched to each other in such a way that the **light diffracted** at the sawtooth-shaped profile of the relief structure behaves in a first approximation similarly...to the viewer as always remaining lit white or in other words as an **achromatic surface**.  
 The concentration of the diffracted light into a closely defined angle range ( $\psi$ ) causes the...

...large angle range. In addition the grating with such a large profile height cannot be **copied** with a **holographic contact copy** to produce a **surface relief** as with the **holographic contact copy** the profile height of the relief, for example resulting in photoresist, would typically be only about 0.1 to 0.2( $\mu$ )m. In addition other forms of the **holographic copy** procedure for producing a **surface relief** (see for example the description of the contact **copy** process and the two-step process in S.P. McGrew, **Hologram Counterfeiting: Problems and Solutions**, SPIE vol. 1210 Optical **Security** and Anti-counterfeiting Systems 1990) also involve losing the pronounced asymmetry of the grating structure, which...

...in greater detail hereinafter with reference to the drawing in which:  
 Figure 3 shows a **surface** pattern,  
 Figure 4 shows three representations of graphic configuration,  
 Figure 5 shows the **surface** pattern in the form of a composite **laminate** with **surface** portions having a grating structure of a sawtooth-shaped profile shape,  
 Figure 6 shows details...155/1.5 = 0.1 ( $\mu$ )m if the gratings are covered with the lacquer **layer** 16 (Figure 5) with a refractive index  $n = 1.5$ .  
 The two grating structures are arranged in the **surface** portions 3 (Figure 3) which belong to the representation 6. In the case of **holographic copying** processes at least the diffraction angles ( $\theta$ ) of the two grating structures change in different...

26/3, K/11 (Item 11 from file: 348)  
 DIALOG(R) File 348: EUROPEAN PATENTS  
 (c) 2008 European Patent Office. All rts. reserv.

00511126  
 SECURITY DEVICE AND AUTHENTICABLE ITEM  
 SICHERHEITSEINRICHTUNG UND BEGLAUBIGUNGSAHIGES STUICK  
 DISPOSITIF DE SECURITE ET OBJET POUVANT ETRE AUTHENTIFIE  
 PATENT ASSIGNEE:

THOMAS DE LA RUE LIMITED, (490914), 6 Agar Street, London WC2N 4DE, (GB),  
 (applicant designated states: AT; BE; CH; DE; DK; ES; FR; GR; IT; LI; LU; NL; SE)  
 INVENTOR:  
 HASLOP, John, Martin 22 Radcot Close Woodley, Reading, Berkshire W1A 1DL,  
 (GB)  
 LEGAL REPRESENTATIVE:

Skone James, Robert Edmund et al (50281), GILL JENNINGS & EVERY Broadgate  
House 7 Eldon Street, London EC2M 7LH, (GB)  
PATENT (CC, No, Kind, Date): EP 558574 A1 930908 (Basic)  
EP 558574 B1 961016  
WO 9209444 920611  
APPLI CATION (CC, No, Date): EP 91920404 911122; WO 91GB2069 911122  
PRI ORI TY (CC, No, Date): GB 9025390 901122  
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GR; IT; LI; LU; NL; SE  
INTERNATIONAL PATENT CLASS (V7): B42D-015/00; B42D-015/10;  
NOTE:

No A-document published by EPO  
LANGUAGE (Publication, Procedural, Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPAB96	866
CLAIMS B	(German)	EPAB96	781
CLAIMS B	(French)	EPAB96	910
SPEC B	(English)	EPAB96	6015
Total word count - document A			0
Total word count - document B			8572
Total word count - documents A + B			8572

... SPECI FI CATION B1

The invention relates to authenticated items such as **security** documents, for example banknotes, and to **security** devices for fixing to articles to provide authentication and protection against fraudulent reproduction of the article.

Optically variable devices such as **holograms** and diffraction patterns are used widely on financial transaction **cards** and the like for authentication purposes and protection against fraudulent reproduction. Banknotes bearing single **holographic** images have been issued by a few countries including Australia and Austria. The use of such devices on **substrates** such as banknotes which flex during handling has been relatively limited, however. This limitation is...

... a number of reasons and includes the aesthetic requirement for flatness required for viewing a **hologram** of a complete object, which is generally difficult to achieve with a flexible **substrate** such as a banknote which is regularly crumpled in use.

A further limitation arises from the uneven, fibrous structure of paper **substrates** which causes minute local contouring effects to be imparted to hot stamped **holograms**.

WO90/07133 published on the 28th June 1990 describes the crinkling problems which are encountered...

... is created to overcome the problem

US-A-4568141 also addresses the problems of providing **security** devices on documents and in particular the problems arising from the crumpling of such documents... Other diffraction effects make use of diffraction gratings with irregular line spacings to achieve object **holograms** and computer generated diffracting patterns; while further diffraction effects include diffractive mosaics of complementary areas

... of diffractive gratings.

The symbol generating element if diffractive will normally be an optically diffracting **surface** relief pattern **replicated** into a material such as a transparent polymeric composition with such a transmission **hologram** made viewable in reflection by the provision of a reflective **layer** such as a complete **layer** of conforming metal which provides mirror reflectivity and opacity. The diffractive structure may also be rendered partially transparent so that for example any underlying **security** printing can be observed, by treating the relief patterned **surface** with a very thin (e.g. a quarter white light wavelength) thickness of metal, providing...

... interfering structures such as multilayer interference coatings of for example the dielectric type (having alternating **layers** of materials exhibiting low and high refractive indices) and the metal-dielectric type (having a...

... off axis laser interference recording so that diffracting graphical patterns can be formed or object **holograms** can be eventually

reconstructed. After **holographic** origination is completed on the optical bench the photoresist **surface** is then developed to provide a **surface** relief pattern which is generally **replicated** by electroforming a nickel plate on the photoresist **surface**. This nickel **replica** can then be used directly or more commonly indirectly to produce further generations of **replicas** which are used to impart the three dimensional diffracting **surface** into the polymeric **layer**. The **layer** must then be treated, eg metallised, although thinly metallised plastic may itself be embossed. Alternatively diffracting **surface replication** may be achieved by radiation curing of monomers with subsequent metallisation. Embossed thermoplastic films may be coated with heat activatable adhesives and applied to the **substrate** under pressure optionally with a graphically outlined blocking dye so as to achieve transfer of... Using plain diffraction gratings the rainbow colour variation of the symbols which occurs as the **angle** of **inclination** is changed may be repeated as higher orders of **light diffraction** occur.

Figure 18 illustrates the relationship between the viewing **angle** of **inclination** and the **angle** of rotation for two, superposed symbols. Figure 18 illustrates the banknote 1 and a pair... or pressure sensitive adhesive and the finished security device can then be applied to a **substrate** by hot stamping using, for example, shaped blocking dies. As explained above, there is little damage to the embossing or metallisation during the hot stamping process providing the **substrate** presents a suitable receiving **surface**. For example, intaglio printed banknotes have been found to be sufficiently compacted to receive security devices using a hot stamping technique but in addition or alternatively the **substrate** could be varnished. In the preferred examples, a hot stamping foil is provided carrying a multiplicity of symbols which are then hot blocked on to the **surface** to be **secured**. The hot stamping foil may employ sets of symbols which have to be applied in register with a feature on the **substrate**. Alternatively a so-called generic pattern of closely repeating images which have not be positioned...

... devices be in the form of hot stamping foils as described above but in addition **holographically** treated transfer foils, tapes with adhesive backing such as transferred pressure sensitive adhesive backing, threads and ribbons (such as **security** document e.g. "windowed" bank note threads) and tapes of label stock in which the...

... to be flattened out carefully prior to viewing.

In the case of embodiments which include **holograms** eg. of objects, the **holograms** should reconstruct in white light. Such white light viewable holograms, sometimes called rainbow holograms, are...

... CLAIMS of the symbols present a three-dimensional object (40) in the form of an object **hologram**.

21. An authenticated item according to any of the preceding claims, wherein the item comprises a **security** document.
22. An item according to claim 21, wherein the **security** document is a banknote.
23. A **security** device for mounting to an article to be authenticated, the device comprising an authenticated item..

... comprises heat or pressure sensitive adhesive to enable the device to be fixed to a **surface** of the article.

25. A device according to claim 23 or claim 24, wherein the...

26/3, K/17 (Item 17 from file: 348)  
 DIALOG(R) File 348: EUROPEAN PATENTS  
 (c) 2008 European Patent Office. All rts. reserv.

00899354

Reflection type diffuse hologram hologram for reflection hologram color filters, etc., and reflection type display device using such holograms  
 Diffuses Reflektionshologramm Hologramm für holographisches Reflektions-FarbfILTER, usw. und ReflektionsanzeigerVorrichtung unter Verwendung eines solchen Hologramm  
 Hologramme diffus de reflexion, hologramme pour filtre couleur holographique

par reflexion, etc. et dispositif d'affichage par reflexion l'utilisant  
PATENT ASSIGNEE:

DAI NIPPON PRINTING CO., LTD., (2113190), 1-1, Ichigaya-Kagacho 1-Chome,  
Shinjuku-Ku, Tokyo 162, (JP), (applicant designated states: DE; FR; GB)  
INVENTOR:

Nishikawa, Shingo, Dai Nippon Printing Co., LTD., 1-1, Ichigaya-Kagacho  
1-chome, Shinjuku-Ku, Tokyo 162, (JP)

Ueda, Kenji, Dai Nippon Printing Co., LTD., 1-1, Ichigaya-Kagacho  
1-chome, Shinjuku-Ku, Tokyo 162, (JP)

Segawa, Toshikazu, Dai Nippon Printing Co., LTD., 1-1, Ichigaya-Kagacho  
1-chome, Shinjuku-Ku, Tokyo 162, (JP)

Hotta, Tsuyoshi, Dai Nippon Printing Co., LTD., 1-1, Ichigaya-Kagacho  
1-chome, Shinjuku-Ku, Tokyo 162, (JP)

Kuwabara, Yuko, Dai Nippon Printing Co., LTD., 1-1, Ichigaya-Kagacho  
1-chome, Shinjuku-Ku, Tokyo 162, (JP)

LEGAL REPRESENTATIVE:

VOSSIUS & PARTNER (100314), Siebertstrasse 4, 81675 Munchen, (DE)  
PATENT (CC, No, Kind, Date): EP 821293 A2 980128 (Basic)

EP 821293 A3 981118

APPLICATION (CC, No, Date): EP 97112512 970722;

PRIORITY (CC, No, Date): JP 19202096 960722; JP 19757496 960726

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS (V7): G03H-001/04

ABSTRACT WORD COUNT: 196

LANGUAGE (Publication, Procedural, Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9805	2747
SPEC A	(English)	9805	16507
Total word count - document A			19254
Total word count - document B			0
Total word count - documents A + B			19254

... SPECIFICATION be possible.

As can be seen from the foregoing explanations, the aforesaid reflection type diffuse **hologram** of the present invention is fabricated by the incidence of diffuse light diffusing within the desired angle range and parallel light on both sides of a volume **hologram**-recording photosensitive material wherein they interfere. It is thus possible to prevent light from a and making bright displays and indications possible. Since the diffusing plate is a volume **hologram**, it is further possible to achieve easy fabrication of diffusing plates having given characteristics by **replication**.

Reference will then be made to a specific example of a reflection type of direct-view color display device making use of the **hologram** color filter according to the present invention.

Figure 8 is a sectional schematic of one embodiment of a reflection type of direct-view color display device constructed using a **hologram** color filter, for instance, one shown in Figure 28. As illustrated, a **hologram** color filter 55 is spaced away from a side of a transmission type spatial light...

... reflection type hologram 30 which will be described at great length, with a light-absorbing **layer** 35 mounted on the back side of the hologram 30. A black matrix 54 is... grating spacing, but differ in terms of the inclination of grating surface (fringe surface). The **angle** of **inclination**, and the direction of grating surface can be freely selected. Incident light is **diffracted** by the Bragg grating 103 in a direction in which the angle of incidence, and... reference will be made to how to record the Bragg grating 103 having varying grating **surface** spacing, and inclination for each pixel 102, i.e., how to fabricate the **hologram**-recorded medium of the present invention. Broadly speaking, this is achieved by four methods, the first one wherein the medium is fabricated from a computer-generated **hologram** (CGH) by **replication**, the second wherein the medium is fabricated by use of a mask... the Bragg grating while two coherent light beams are moved relatively with respect to a **hologram**-recording medium.

Several approaches may be envisaged to the CGH **replication** method. A CGH of the relief type is in itself fabricated by using a computer...

... alone in a given direction, and drawing the interference fringes on a

glass or other **substrate** with an electron beam resist coated thereon by use of an electron beam for instance...

... reflection or transmission type, too, may be fabricated.

According to the first approach, a volume **hologram** photosensitive material 107 such as a photopolymer is stacked on a reflection type CGH 106...

**26/3, K/18** (Item 18 from file: 348)  
DIALOG(R) File 348: EUROPEAN PATENTS  
(c) 2008 European Patent Office. All rts. reserv.

00782156

**Reflecting type optical system**  
**Optisches System mit reflektierenden Flächen**  
**Système optique du type réfléchissant**

PATENT ASSIGNEE:

CANON KABUSHI KI KAI SHA, (542361), 30-2, 3-chome, Shimmaruko, Chitaku, Tokyo, (JP), (Proprietor designated states: all)

INVENTOR:

Tanaka, Tsunefumi, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Kurihashi, Toshiya, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Ogura, Shigeo, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Araki, Keisuke, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Sekita, Makoto, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Takeda, Nobuhiro, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Uchino, Yoshihiro, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Kimura, Kenichi, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Yanai, Toshikazu, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Namba, Norihiro, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Saruwatari, Hiroshi, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

Akiyama, Takeshi, c/o Canon K.K., 3-30-2, Shimmaruko, Chitaku, Tokyo, (JP)

LEGAL REPRESENTATIVE:

Leson, Thomas Johannes Alois, Dipl.-Ing. et al (78981), Patentanwalt  
Tiedtke-Buhling-Kinne & Partner, Bavariaring 4, 80336 München, (DE)

PATENT (CC, No, Kind, Date): EP 730169 A2 960904 (Basic)

EP 730169 A3 980422

EP 730169 B1 020123

APPLICATION (CC, No, Date): EP 96102915 960227;

PRIORITY (CC, No, Date): JP 9565109 950228; JP 95123238 950424

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS (V7): G02B-005/00; G02B-017/00

ABSTRACT WORD COUNT: 138

NOTE:

Figure number on first page: 1

LANGUAGE (Publication, Procedural, Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB96	1721
CLAIMS B	(English)	200204	1094
CLAIMS B	(German)	200204	926
CLAIMS B	(French)	200204	1133
SPEC A	(English)	EPAB96	16458
SPEC B	(English)	200204	16156
Total word count - document A			18183
Total word count - document B			19309
Total word count - documents A + B			37492

... SPECIFICALLY a prism Pb, then penetrates the paraboloidal half-mirror 152 and then exits from the **surface** 157, reaching the eye 153 of the observer. So, the observer views the external field...

...the display image overlapping thereon.

Further, an optical element can be used in the reflecting surface of the prism. This is exemplified as disclosed in, for example, Japanese Laid-Open Patent...

...a head receives the light from a semiconductor laser, then reflects it from the Fresnel surface or hologram surface to form an image on a disk, and then conducts the reflected light from the...

...for the reflecting mirrors becomes very complicated in structure. It is also very difficult to secure the acceptable mount tolerance.

It should be also noted that the prior-known reflecting type... conditions are satisfied: (Formula omitted) (Formula omitted) (Formula omitted) (Formula omitted) where (theta) is an angle of inclination of the first curved reflecting surface with respect to the reference axis and d is the distance between the center of the stop and the first curved reflecting surface as measured along the reference axis;

All design parameters are so determined that... conditions are satisfied: (Formula omitted) (Formula omitted) (Formula omitted) (Formula omitted) where (theta) is an angle of inclination of the first curved reflecting surface with respect to the reference axis and d is the distance between the center of the stop and the first curved reflecting surface as measured along the reference axis;

All design parameters are so determined that...

...conditions are satisfied: (Formula omitted) (Formula omitted) (Formula omitted) (Formula omitted) where (theta) is an angle of inclination of the first curved reflecting surface with respect to the reference axis and d is the distance between the center of the stop and the first curved reflecting surface as measured along the reference axis;

All design parameters are so determined that...

...SPECIFICATION a prism Pb, then penetrates the paraboloidal half-mirror 152 and then exits from the surface 157, reaching the eye 153 of the observer. So, the observer views the external field...

...the display image overlapping thereon.

Further, an optical element can be used in the reflecting surface of the prism. This is exemplified as disclosed in, for example, Japanese Laid-Open Patent...

...a head receives the light from a semiconductor laser, then reflects it from the Fresnel surface or hologram surface to form an image on a disk, and then conducts the reflected light from the...

...for the reflecting mirrors becomes very complicated in structure. It is also very difficult to secure the acceptable mount tolerance.

It should be also noted that the prior-known reflecting type... and t, wherein, putting and defining the following conditions are satisfied: where (theta) is an angle of inclination of the first curved reflecting surface with respect to the reference axis and d is the distance between the center of the stop and the first curved reflecting surface as measured along the reference axis;

All design parameters are so determined that... and t, wherein, putting and defining the following conditions are satisfied: where (theta) is an angle of inclination of the first curved reflecting surface with respect to the reference axis and d is the distance between the center of the stop and the first curved reflecting surface as measured along the reference axis;

All design parameters are so determined that...

...and t, wherein, putting and defining the following conditions are satisfied: where (theta) is an angle of inclination of the first curved reflecting surface with respect to the reference axis and d is the distance between the center of the stop and the first curved reflecting surface as measured along the reference axis;

All design parameters are so determined that...

...CLAIMS conditions are satisfied: (Formula omitted) (Formula omitted) (Formula omitted) (Formula omitted) where (theta) is an angle of inclination of said first curved reflecting surface with respect to

the reference axis and  $d$  is the distance between the **center** of said stop and said first **curved** reflecting surface as measured along the reference axis.

6. An optical system of reflecting type... conditions are satisfied: (Formula omitted) (Formula omitted) (Formula omitted) (Formula omitted) where  $(\theta)$  is an **angle** of **inclination** of said first curved reflecting surface with respect to the reference axis and  $d$  is the distance between the **center** of said stop and said first **curved** reflecting surface as measured along the reference axis.
26. An optical system of reflecting type...

... conditions are satisfied: (Formula omitted) (Formula omitted) (Formula omitted) (Formula omitted) where  $(\theta)$  is an **angle** of **inclination** of said first curved reflecting surface with respect to the reference axis and  $d$  is the distance between the **center** of said stop and said first **curved** reflecting surface as measured along the reference axis.

38. An optical system of reflecting type...

... CLAIMS t, and wherein, putting and defining the following conditions are satisfied: where  $(\theta)$  is an **angle** of **inclination** of said first curved reflecting surface with respect to the reference axis and  $d$  is the distance between the **center** of said stop (R1) and said first **curved** reflecting surface as measured along the reference axis.

6. An optical system of reflecting type...

**26/3, K/20 (Item 20 from file: 348)**

DIALCOG(R) File 348: EUROPEAN PATENTS

(c) 2008 European Patent Office. All rts. reserv.

00557790

**OPTICAL BEAM SCANNING APPARATUS, AND METHOD FOR MANUFACTURING STATI ONARY HOLOGRAM PLATE, AND HOLOGRAM ROTOR**

**OPTISCHES ABTASTGERÄT, HERSTELLUNGSVERFAHREN FÜR STATI ONARE HOLOGRAMPLATTE UND HOLOGRAPHISCHER ROTOR**

**APPAREIL DE BALAYAGE A FAISCEAU OPTIQUE, PROCEDE DE FABRICATI ON D'UNE PLAQUE HOLOGRAPHIQUE I MMOBILE ET CORPS ROTATI F HOLOGRAPHIQUE**

PATENT ASSI GNEE:

FUJITSU LIM TED, (211460), 1015, Kami kodanaka, Nakahar a-ku, Kawasaki -shi, Kanagawa 211, (JP), (Proprietor designated states: all)

I NVENTOR:

HASEGAWA, Shinya, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

KAYASHI MA, Shigeo, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

MAEDA, Satoshi, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

I WATA, Shigetake, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

YANAGISHI, Fumio, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

NAKASHI MA, Masato, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

ARI TAKE, Hirokazu, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

HOKARI, Mamoru, Fujitsu Limited, 1015, Kami kodanaka Nakahar a-ku Kawasaki -shi, Kanagawa 211, (JP)

LEGAL REPRESENTATI VE:

Stebbing, Timothy Charles et al (59641), Haseltine Lake & Co., Imperial House, 15-19 Kingsway, London WC2B 6UD, (GB)

PATENT (CC, No, Kind, Date): EP 532760 A1 930324 (Basic)

EP 532760 A1 950419

EP 532760 B1 011128

WO 9217808 921015

APPLI CATI ON (CC, No, Date): EP 92907344 920326; WO 92JP371 920326

PRI ORI TY (CC, No, Date): JP 9162961 910327; JP 91140205 910612; JP 91275271 911023; JP 91277497 911024; JP 91277498 911024; JP 91277499 911024; JP 91277500 911024; JP 91320162 911204

DESIG NATED STATES: DE; FR; GB

RELATED DI VI SI ONAL NUMBER(S) - PN (AN):

EP 1116980 (EP 2001105458)



EP 1116981 (EP 2001105459)  
 EP 1111428 (EP 2001105460)  
 EP 1122578 (EP 2001105461)  
 EP 1111429 (EP 2001105462)  
 EP 1111430 (EP 2001105463)  
 EP 1111431 (EP 2001105464)  
 EP 1111432 (EP 2001105465)  
 EP 1111433 (EP 2001105466)  
 EP 1111434 (EP 2001105468)  
 INTERNATIONAL PATENT CLASS (V7): G02B-026/10  
 ABSTRACT WORD COUNT: 333

LANGUAGE (Publication, Procedural, Application): English; English; Japanese  
 FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	15261
CLAIMS B	(English)	200148	1426
CLAIMS B	(German)	200148	1340
CLAIMS B	(French)	200148	1636
SPEC A	(English)	EPABF1	29598
SPEC B	(English)	200148	6098
Total word count - document A			44864
Total word count - document B			10500
Total word count - documents A + B			55364

...ABSTRACT the increase and change of the diameter of a scanning beam uneven rotation of a **hologram** rotating body, the positional changes in the directions of main and subscannings by the mode...

...a semi-conductor laser, and the deterioration of the parallelism of the base of the **hologram** rotating body, etc., which mar the resolution and impede the cost reduction of a **hologram** scanner. The apparatus uses only the **holograms** that are **duplicated** in large quantities, without using auxiliary optical systems such as optical lenses and mirrors with ...

...lengths, the weighting being conducted for each of scanning points on the entire image-forming **surface** (4). One of the two optical path lengths is of a light beam on the...

NOTE:

...SPECIFICATION be large. This enlarges the angle incident on the fixed hologram plate 20, causing the **diffracted light** to **bend** too much toward the **center** given the same spatial frequency, with the result that the linearity exhibits a degradation, as...

**26/3, K/21 (Item 21 from file: 348)**  
 DIALOG(R) File 348: EUROPEAN PATENTS  
 (c) 2008 European Patent Office. All rts. reserv.

00320603

**Holographic deflection device**  
**Holographische Ablenkungsvorrichtung**  
**Dispositif de deflexion holographique**

PATENT ASSIGNEE:

FUJITSU LIMITED, (211460), 1015, Kamikodanaka, Nakahara-ku, Kawasaki-shi, Kanagawa 211, (JP), (applicant designated states: DE; ES; FR; GB)

INVENTOR:

Inagaki, Takefumi, 1341-75, Ozenji Asao-ku, Kawasaki-shi Kanagawa 215, (JP)  
 Yamagishi, Fumio, 5-541, 40-1, Oya, Ebina-shi Kanagawa 243-04, (JP)  
 Ikeda, Hiroyuki, 1-7, Mugita-cho Naka-ku, Yokohama-shi Kanagawa 231, (JP)  
 Hasegawa, Shin-ya, Fukujukopo 202 1-16-15, Haramachi-da, Machida-shi Tokyo 194, (JP)

LEGAL REPRESENTATIVE:

Joly, Jean-Jacques et al (39741), Cabinet Beau de Lomenie 158, rue de l'Universite, F-75340 Paris Cedex 07, (FR)

PATENT (CC, No, Kind, Date): EP 277883 A2 880810 (Basic)  
 EP 277883 A3 910102  
 EP 277883 B1 960424

APPLICATION (CC, No, Date): EP 88400248 880202;  
 PRIORITY (CC, No, Date): JP 8721892 870203; JP 87287561 871116

DESIGNATED STATES: DE; ES; FR; GB  
INTERNATIONAL PATENT CLASS (V7): H01S-003/101;  
ABSTRACT WORD COUNT: 51

LANGUAGE (Publication, Procedural, Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	1151
CLAIMS B	(English)	EPAB96	1376
CLAIMS B	(German)	EPAB96	1336
CLAIMS B	(French)	EPAB96	1571
SPEC A	(English)	EPABF1	6893
SPEC B	(English)	EPAB96	6842
Total word count - document A			8044
Total word count - document B			11125
Total word count - documents A + B			19169

... SPECIFICATION 71a is diffracted by the hologram 150 toward the reflecting surface 72 which reflects the **diffracted light** downward at an **angle** determined by the **inclination angle** ( $\Delta$ ) of the reflecting surface 72, so that the light is finally emitted from..  
Application Serial No. 467.773.

Figure 28 shows an example of how to produce a **hologram** used in the present invention, in which a master **hologram** with 2740/mm<sup>2</sup> of equi-pitch gratings is first formed by interference exposure...

... of coherent light (plane waves at 41.9(degree) and -41.9(degree)). Then, a **copy hologram** plate 201 with a photosensitive layer on which a **copy hologram** is to be formed is located below the master **hologram** 200 through an index matching liquid (e.g. xylene or ethyl alcohol, etc.) 203. When the master **hologram** is **copied** on the photosensitive layer of the **copy hologram** plate to form a **copy hologram**, the **copying** light 207 is incident upon the master **hologram** 200 at different incident angles ( $\theta$ )( $\sin(\theta)$ )( $x$ ), which are properly selected to be optimum depending on the position  $x$  of the master **hologram** 200. Such light having different incident angles can be easily created, for example, by a...

... SPECIFICATION 71a is diffracted by the hologram 150 toward the reflecting surface 72 which reflects the **diffracted light** downward at an **angle** determined by the **inclination angle** ( $\Delta$ )(o slash) of the reflecting surface 72, so that the light is finally emitted..  
Application Serial No. 467.773.

Figure 28 shows an example of how to produce a **hologram** used in the present invention, in which a master **hologram** with 2740/mm<sup>2</sup> of equi-pitch gratings is first formed by interference exposure...

... of coherent light (plane waves at 41.9(degree) and -41.9(degree)). Then, a **copy hologram** plate 201 with a photosensitive layer on which a **copy hologram** is to be formed is located below the master **hologram** 200 through an index matching liquid (e.g. xylene or ethyl alcohol, etc.) 203. When the master **hologram** is **copied** on the photosensitive layer of the **copy hologram** plate to form a **copy hologram**, the **copying** light 207 is incident upon the master **hologram** 200 at different incident angles ( $\theta$ )( $\sin(\theta)$ )( $x$ ), which are properly selected to be optimum depending on the position  $x$  of the master **hologram** 200. Such light having different incident angles can be easily created, for example, by a...

26/3, K/22 (Item 22 from file: 348)  
DIALOG(R) File 348: EUROPEAN PATENTS  
(c) 2008 European Patent Office. All rts. reserv.

00276528

A method for producing a decorative surface structure with holographic or diffraction pattern.

Verfahren zur Herstellung einer dekorativen Oberflächenstruktur mit einem Hologramm oder einem Beugungsmuster.

Procédé pour la fabrication d'une surface en relief décorative, avec un hologramme ou un motif de diffraction.

PATENT ASSIGNEE:

W Bloesch AG (726750), Moosstrasse 78, CH-2540 Grenchen, (CH),  
 (applicant designated states: CH; DE; FR; GB; IT; LI)  
 INVENTOR:  
 Bloesch, Erich, G belstrasse 10, CH-2540 Grenchen, (CH)  
 LEGAL REPRESENTATIVE:  
 Seehof, Michel et al (26841), c/o AMMANN PATENTANWALTE AG BERN  
 Schwarztorstrasse 31, CH-3001 Bern, (CH)  
 PATENT (CC, No, Kind, Date): EP 287746 A1 881026 (Basic)  
 EP 287746 B1 901024  
 APPLICATION (CC, No, Date): EP 87810255 870422;  
 PRIORITY (CC, No, Date): EP 87810255 870422  
 DESIGNATED STATES: CH; DE; FR; GB; IT; LI  
 INTERNATIONAL PATENT CLASS (V7): C25D-001/10; G04B-045/00; B44C-001/20;  
 B44F-001/00;  
 ABSTRACT WORD COUNT: 152

LANGUAGE (Publication, Procedural, Application): English; English; English  
 FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPABF1	288
SPEC B	(English)	EPABF1	872
Total word count - document A			0
Total word count - document B			1160
Total word count - documents A + B			1160

#### ... ABSTRACT A1

The method of producing a decorative **surface** structure comprises the steps of making a metallic master model of the required **surface** where a **macroscopic relief** is combined with one or more elements carrying a **macroscopic relief** pattern in the form of **holographic** or diffracting structures, forming a casting of the **surface** of the master model in a suitable polymeric material, applying a thin conducting **layer** to the **surface** of the casting, and then electroforming the polymeric casting to produce a metallic **replica** of the desired **surface**.

In the decorative **surface** structure formed by the master model and casting steps described, the application of the thin conducting **layer** provides the decorative effect, and the casting with its conducting **layer** provides the decorative **surface** structure.

A thus decorated **surface**, for example a watch face, has an improved quality and range of decorations as well...

#### NOTE:

... SPECIFICATION machining to achieve a decorative or utilitarian effect.  
 As an example of such an enhanced **surface** we here consider a watch face.

It is known that watch faces can be produced by traditional methods of printing and engraving onto plane **surfaces**. It is also known that enhancement of such a product can be obtained by the...

... process whereby a master model of the watch face is made - commonly in metal -, plastic **copies** of this master are produced by a process such as casting, and subsequent electroformed metal **copies** are made from the plastic intermediate. This electroforming process allows considerable product enhancement because relief...

... for example raised numerals) can be incorporated into the master model, and are thus also **copied** onto the subsequent electroform.

It is also known that decorative effect and **surface** enhancement can be achieved by means of certain types of **hologram** and diffractive pattern. The so-called embossed **hologram**, and a multiplicity of decorative diffraction foils use the presence of a micro-relief structure on a **surface** to create a **surface** enhancement which is based on optical diffraction and not on the properties of coloured inks, pigments etc. Such embossed **surfaces** may be further enhanced by the application of a thin metal **layer** (for example vacuum coated aluminium). Products such as the embossed **hologram** and diffraction foil are available in today's marketplace in the form of thin plastic foils...

... have been embossed using a suitably made embossing master carrying the diffractive information as a **surface** relief structure.

It is the object of the present invention to improve the quality and the range of the decoration of **surfaces**.

This object is attained, according to the invention, by combining the electroforming process used to...

...watch face as described above, with the presence over all or part of the required **surface** of holographic or diffractive patterns in the form of micro relief structures.

A method will be described below by way of an example for producing decorated **surfaces**.

First, a holographic or diffractive relief pattern is formed in a metal **surface** whereby this step may itself involve producing an electroformed **copy** of a holographic or diffractive relief pattern recorded using laser technology on a photosensitive **surface**.

All or parts of this metal relief pattern are then incorporated into a master model of the finally required watch face. In general, this master model will also include non- **holographic** or non-diffractive areas and elements to provide macroscopic relief effects and **surface** texturing, and utilitarian features such as apertures for the date wheel and driving axles for the hands. Several different **holographic** or diffractive elements may be incorporated into different areas of the same watch face.

Castings in a polymer system are produced of the master model **surface**.

These castings are coated with a suitable electrically conducting **layer**, preferentially less than 100 nm and then in a suitable holder, are electroformed to provide **replicas** of the original master model **surface**. It is convenient and economic to use copper as the electroforming metal.

The electroformed watch faces are then finished by applying a further decorative **layer** to the **replica surface**, for example of gold in a thin **layer** of less than 100 nm and various metal finishing operations such as stamping to the...

...of the desired final surface. A suitable decorative finish can then be applied to the **surface** of the polymer casting, for example a vacuum evaporated gold **layer**, and final operations such as stamping to size or trimming can be performed. Again, a...

...this invention.

The invention described here is not limited to watch faces, but includes metal **surfaces** where an enhancement is required. As an additional feature the technology described here provides a **security** feature which can protect the **surface** of an object into which such a **surface** is intimately combined, against simulation by conventional printing or engraving methods.

The technology can be...

...jewelry to provide product enhancement, to medals and coin-like items where the inclusion of **holographic** or diffractive **surface** elements can provide both enhancement and proof of authenticity, and to general metal objects which...

...be produced using an electroforming technique and which can be enhanced by the inclusion of **holographic** and diffractive effects.

...CLAIMS B1

1. A method for forming decorative **surface** structure by making a metallic master model of the required surface where a macroscopic relief...

...combined with one or more elements carrying a macroscopic relief pattern in the form of **holographic** or diffracting structures, forming a casting of the surface of the master model in a...

...the surface of the casting, and then electroforming the polymeric casting to produce a metallic **replica** of the desired surface.

2. The method of claim 1 to which an additional thin...

...model and casting steps described in claim 1 where the application of the thin conducting **layer** provides the decorative effect, and the casting with its conducting **layer** provides the decorative **surface** structure.

4. The metallic master model of the required decorative **surface** structure made according to claim 1 or 2 where the macroscopic relief regions have been formed by conventional machining operations, and the **holographic** or diffracting elements are themselves in the form of an electroformed **replica** of an optically recorded **holographic** or diffractive microscopic relief structure recorded using the interference between coherent wave-fronts on a suitable photosensitive recording medium
  5. A decorative **surface** structure according to claim 3 in the form of a watch face.
  6. A decorative **surface** structure according to claim 3 which provides the decorative part of a piece of jewelry...
- ...structure according to claim 3 in the form of a medallion or coin.
8. The **surface** structure made according to claim 1 or 2 where the role of the **holographic** or diffractive elements incorporated into the surface is to provide a **security** feature to guard against the simulation of a similar **surface** by conventional printing or non-**holographic** or non-diffractive finishing methods.

**26/3, K/23** (Item 23 from file: 348)  
 DIALCOG(R) File 348: EUROPEAN PATENTS  
 (c) 2008 European Patent Office. All rts. reserv.

00226861

**Laser beam scanner and its fabricating method.**  
**Laserstrahl scanner und Herstellungsverfahren.**  
**Balayage a faisceau laser et son procede de fabrication.**

PATENT ASSIGNEE:

FUJITSU LIMITED, (211460), 1015, Kamikodanaka Nakahara-ku, Kawasaki-shi  
 Kanagawa 211, (JP), (applicant designated states: DE; FR; GB; IT)

INVENTOR:

Hasegawa, Shin-ya, Fukujukopo 202-1-16-15, Haramachi da, Machida-shi  
 Tokyo 194, (JP)  
 Kato, Masayuki, Dai-2 Chiso 8-1-7-8, Chitose, Atsugi-shi Kanagawa 243, (JP)  
 Yamagishi, Fumio, 5-541, 40-1 Oya, Ebina-shi Kanagawa 243-04, (JP)  
 Ikeda, Hiroyuki, 7, Mugita-cho 1-chome Naka-ku, Yokohama-shi Kanagawa 231  
 , (JP)  
 Inagaki, Takefumi, 1341-75, Ozenji Asao-ku, Kawasaki-shi Kanagawa 215,  
 (JP)

LEGAL REPRESENTATIVE:

Descourtieux, Philippe et al (15181), Cabinet Beau de Lomenie 158, rue de  
 l'Universite, F-75340 Paris Cedex 07, (FR)

PATENT (CC, No, Kind, Date): EP 214018 A2 870311 (Basic)  
 EP 214018 A3 890607  
 EP 214018 B1 931201

APPLICATION (CC, No, Date): EP 86401720 860731;

PRIORITY (CC, No, Date): JP 85168830 850731; JP 8614445 860125; JP 8660826  
 860320; JP 8660833 860320; JP 8660845 860320; JP 8660846 860320

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS (V7): G02B-026/10; G02B-005/32;

ABSTRACT WORD COUNT: 144

LANGUAGE (Publication, Procedural, Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	867
CLAIMS B	(German)	EPBBF1	825
CLAIMS B	(French)	EPBBF1	919
SPEC B	(English)	EPBBF1	15549
Total word count - document A			0
Total word count - document B			18160
Total word count - documents A + B			18160

... SPECIFICATION mark (\*). In this case, the fabricating wavelength is  
 ( $\lambda$ )(sub 1) (488 nm Ar laser), and the parameters of concave  
 lens 9 are: lens thickness  $DO = 20.99$  mm refractive index 1.552  
 (wavelength 488 nm), **curvature**  $R$ (sub 2) = 65 mm incident **position**  
 $y$ (sub 2) = 16.71 mm distance from an incident focus to an optical axis  
 $y$ (sub 3) = 28.06 mm incident focal length  $f$ (sub 2) = 112.3 mm  
**inclination angle**  $\alpha = 17.7$ (degree), distance from the concave lens 9

to a hologram photosensitive surface... parameters are set as follows:  $a = 10 \text{ mm}$ ,  $a(\text{sub}(y)) = 50.82 \text{ mm}$ , an inclination angle ( $\theta$ ) =  $17.03(\text{degree})$ , and an outgoing angle of the diffracted wave 126 of the...

...is to prevent the scanning characteristics from deteriorating due to a variation of the wavelength of the semiconductor laser.  
(Concrete Design Parameters of Embodiment of Invention (Fig. 8))  
The design parameters of the aberration correcting holographic lens 112 in the laser beam scanner will be described...

...and the reference wave 116 are the Ar laser beams of wavelength  $(\lambda)(\text{sub } 1) = 488 \text{ nm}$ . For the concave lens 111, a material is BK7, a refractive index at wavelength  $(\lambda)(\text{sub } 1)$  being  $N = 1.522$ , a center thickness being  $D = 20.99 \text{ mm}$ , a curvature being  $R = 65 \text{ mm}$ , an inclination angle with respect to the hologram substrate 12 being  $\alpha = 16.95(\text{degree})$ , (lens)(sub 2...to a motor (not shown). A plurality of hologram facets is formed on an upper surface of the holographic disc 802. Ten facets are formed in this particular embodiment. 805 designates

...in cooperation with a mirror 806. A semiconductor laser device 807 is attached to a support block 815. A laser beam from the semiconductor laser device 807 is, as shown by...

...disc 802. The laser beam is diffracted by each facet 804 of the holographic disc 802, and then reflected by a mirror 810 to form a scanning beam which irradiates a photoconductor drum 811.

The attaching portion of the aberration correction holographic lens 809 is explosively illustrated in Fig. 41. The semiconductor laser device 807 is secured to an L-shaped attachment piece 812 by screws. 801 designates lead terminal pins of the semiconductor laser device. The attachment piece 812 is installed in a groove 816 of an L-shaped holder 814. An opening 820 is formed in the holder 814. A hologram plate 817 on which the aberration correction holographic lens is fabricated is installed and secured within the opening 820 by screws through a frame 819.

The semiconductor laser device attachment piece 812 is secured to the holder 814 with the use of screws through elongated slots 813. Therefore, the distance between the semiconductor laser device 807 and the aberration correction holographic lens 809 is adjustable by loosening the screws.

Although a hologram with no aberration can be obtained theoretically according to the above method, there is a...

26/3, K/24 (Item 24 from file: 349)  
DIALCO(R) File 349: PCT FULLTEXT  
(c) 2008 WPO/Thomson. All rights reserved.

00874725 \*\*Image available\*\*

LIGHT CONTROL DEVICES WITH KINOFORM DIFFUSERS  
DISPOSITIFS DE COMMANDE DE LUMIERE ET PROCÉDÉS MIS EN ŒUVRE PAR AVEC DES  
DIFFUSEURS-KINOFORMES AYANT DES CARACTÉRISTIQUES DE DIFFUSION  
CONTROLABLES

Patent Applicant/Assignee:

LEDALITE ARCHITECTURAL PRODUCTS INC, 9087A 198th Street, Langley, British Columbia V1M 3B1, CA, CA (Residence), CA (Nationality), (For all designated states except: US)

ASHDOWN Ian, 620 Ballantree Road, West Vancouver, British Columbia V7S 1W8, CA, CA (Residence), CA (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

SANTORO Scott, 178 66th Street, Delta, British Columbia V4L 1M8, CA, CA (Residence), US (Nationality), (Designated only for: US)

CRENSHAW Melissa, J-1 RR #1, Bowen Island, British Columbia V0N 1G0, CA, CA (Residence), US (Nationality), (Designated only for: US)

Legal Representative:

ANGELLO Paul S (agent), Stael Rives LLP, 900 S.W. Fifth Avenue, Suite 2600, Portland, OR 97204-1268, US

Patent and Priority Information (Country, Number, Date):

Patent: WO 200208799 A2-A3 20020131 (WO 0208799)

Application: WO 2001US22311 20010716 (PCT/WO US0122311)

Priority Application: US 2000218224 20000714; US 2001294423 20010529

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL  
TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 16367

Patent and Priority Information (Country, Number, Date):

Patent: ... **20020131**

Fulltext Availability:

Detailed Description

Publication Year: **2002**

Detailed Description

... Q(i) and is scattered into a beam distribution 28. The beam distribution maximum is **inclined** at an **angle**  $\theta(r)$  relative to surface normal n of diffuser 22 and is equal to angle  $\theta(i)$ .

2. No scattering outside of the specified beam distribution. No incident light would be **scattered** outside of the specified beam distribution ranges.

3. Uniform beam distribution. The incident light would be uniformly **scattered** within the specified beam distribution.

4. No backscatter. If the diffuser transmits rather than reflects... of Lungershausen et al.

Kinoform diffusers for achromatic light applications of a type known as "surface-relief **holographic** diffusers" are commercially available. For example, Physical Optics Corporation (Torrance, CA) manufactures a series of...

...exposing the photosensitive plate to a multiplicity of uncorrelated laser speckle patterns.

A disadvantage of **surface**-relief **holographic** diffusers is that their **surface** relief height distributions are (within the limits of known photographic recording

6

techniques and **replication** technologies) directly proportional to the intensity distributions of the recorded laser speckle patterns. As shown ...color spectrum that is visible on the walls, floor, and ceiling of the room

Multi-layer volume **holograms** have been used as a replacement for diffraction gratings in an attempt to limit the...

...from spectral dispersion under achromatic illumination. Kinoform diffusers made in accordance with the invention embody **surface** relief patterns that produce specific beam distributions.

These patterns are embodied in physical kinoform diffusers using known photographic techniques and **replication** technologies. The invention enables physically realizable specific beam distributions other than beam distributions characterized by...

**26/ 3, K/ 25** (Item 25 from file: 349)

DIALOG(R) File 349: PCT FULLTEXT

(c) 2008 WPO/Thomson. All rights reserved.

00786605 \*\*Image available\*\*

**A METHOD FOR THE MANUFACTURING OF A MATRIX AND A MATRIX MANUFACTURED**

ACCORDING TO THE METHOD  
PROCEDE DE FABRICATION DE MATRI CE ET MATRI CE FABRIQUEE SELON CE PROCEDE

Patent Applicant/Assignee:

AMC AB, Uppsala Science Park, S-751 83 Uppsala, SE, SE (Residence), SE  
(Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

BJORKMAN Henrik, Vaderkvarnsgatan 40, S-753 29 Uppsala, SE, SE  
(Residence), SE (Nationality), (Designated only for: US)

HJORT Klas, Soldathemsvagen 21, S-752 37 Uppsala, SE, SE (Residence), SE  
(Nationality), (Designated only for: US)

ANDERSSON Joakim, Studentvagen 9:23, S-752 34 Uppsala, SE, SE (Residence)  
, SE (Nationality), (Designated only for: US)

HOLLMAN Patrik, Stigbergsgatan 5, S-752 42 Uppsala, SE, SE (Residence), SE  
(Nationality), (Designated only for: US)

Legal Representative:

JOHANSSON WEBJORN Ingmar (et al) (agent), L. A. Groth & Co. KB, Box 6107,  
S-102 32 Stockholm SE,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200120055 A1 **20010322** (WO 0120055)

Application: WO 2000SE1742 20000907 (PCT/WO SE0001742)

Priority Application: SE 993232 19990910; SE 993233 19990910

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AT (utility model) AU AZ BA BB BG BR BY BZ CA CH CN CR CU  
CZ CZ (utility model) DE DE (utility model) DK DK (utility model) DM DZ  
EE EE (utility model) ES FI FI (utility model) GB GD GE GH GM HR HU ID IL  
IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO  
NZ PL PT RO RU SD SE SG SI SK SK (utility model) SL TJ TM TR TT TZ UA UG  
US UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: Swedish

Fulltext Word Count: 7791

Patent and Priority Information (Country, Number, Date):

Patent: ... **20010322**

Fulltext Availability:

Detailed Description

Publication Year: **2001**

Detailed Description

... 9042.

A method is shown and described here for producing a core with an exact  
**relief** -related pattern on its surface, a non-electrical plated coating  
of a first layer on the surface of the **core**, and **dipping** the plated  
**core** in an electro-bath prior to oxidation of the non-electrical plating  
coating is undertaken...2), including fine hard ceramic particles of SiC,  
TiC, TiN, etc, is formed on the **surface** of the master pattern (1).

A shell (3) consisting of nickel is also formed.

The...

...a specific size and inserted in the concave part of the mould (4).

A plated **layer** is thus formed with a hard and uniform **surface**, in  
which  
the ceramic particle-shaped material is uniformly distributed and  
facilitates release of the...

... 400 672-A2.

A technique is shown and described here for producing a mould enabling  
**replication** of a large number of plastic components.

The mould displays a **hologram** or other microstructure to be transferred  
to the outside of a moulded article or component...



...metal on the model of the  
article to be moulded.

Prior to this deposition the **hologram** or other microstructure shall be  
formed on the **surface** areas of the model by means of known technology.

D4) Patent Abstracts of Japan, abstract...

... a  
mould (1) and a glass lens (5), the plastic hardening so that a plastic  
**layer** (4) is formed on the lens (5), with an intermediately oriented  
carbon film (2).  
D5...

**26/3, K/26** (Item 26 from file: 349)  
DIALOG(R) File 349: PCT FULLTEXT  
(c) 2008 WPO Thomson. All rts. reserv.

00764915

**IMAGE MAKING MEDIUM  
SUPPORT DE FORMATION D'IMAGE**

Patent Applicant/Inventor:

HYMAN Sydney, 51 Greene Street, #3, New York, NY 10013, US, US  
(Residence), US (Nationality)

Legal Representative:

WEILD David III, Pennie & Edmonds LLP, 1155 Avenue of the Americas, New  
York, NY 10036, US

Patent and Priority Information (Country, Number, Date):

Patent: WO 200077085 A1 **20001221** (WO 0077085)

Application: WO 2000US16111 20000612 (PCT/WO US0016111)

Priority Application: US 99138694 19990611

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM DZ EE ES  
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU  
LV MA MD MG MK MN MV MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
TZ UA UG US UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MV MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 205520

Patent and Priority Information (Country, Number, Date):

Patent: ... **20001221**

Fulltext Availability:

Detailed Description

Publication Year: **2000**

Detailed Description

... the collage, the construction, the Drawing in Space, welded sculpture,  
the assemblage, the photograph, the **hologram**, illuminated  
transparencies (like works of Light Box Art), Light Art, Light and  
Perceptual Art, Shaped...least about 85% Said image support stabilizers  
are made to bond to at least one **superimposition**, e.g., a paint and/or  
ink. However, image supports made of greater than about...

**26/3, K/27** (Item 27 from file: 349)  
DIALOG(R) File 349: PCT FULLTEXT  
(c) 2008 WPO Thomson. All rts. reserv.

00165873

**MASTER HOLOGRAM AND MICRO PATTERN REPLICATION METHOD  
HOLOGRAME MODELE ET PROCEDE DE REPRODUCTION DE MICRO MOTIFS**

Patent Applicant/Assignee:

TEITEL Michael,

Inventor(s):

TEI TEL Michael,

Patent and Priority Information (Country, Number, Date):

Patent: WO 8912261 A1 **19891214**

Application: WO 89US2425 19890602 (PCT/ WO US8902425)

Priority Application: US 88579 19880603

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AT AU BE CH DE FR GB IT JP KR LU NL SE

Publication Language: English

Fulltext Word Count: 4634

Patent and Priority Information (Country, Number, Date):

Patent: ... **19891214**

Fulltext Availability:

Detailed Description

Claims

Publication Year: **1989**

Detailed Description

MASTER **HOLOGRAM** AND MICROPATTERN REPLICATION METHOD

Background of the Invention

This invention relates to light sensitive materials used to record...

...producing relief

patterns. In particular, this invention relates to the recording of a phase relief **hologram** in a durable **substrate** which can be archivally stored or used as a master for **replication** by electroforming or embossing. This invention also relates to the recording of amplitude **holograms**. More generally, the present invention relates to recording of an information-bearing radiation field, and...

...feature size of below approximately

one micron. Examples of such applications include the recording of **holograms**, semiconductor microlithography, and computer generated **holography**.

The general method for producing a phase relief **hologram** of the prior art consists of several steps. First, a photosensitive material is exposed to...

...wavelength shift problem but the silver halide emulsion still introduces scatter noise. Sometimes the master **hologram** is recorded directly onto photoresist. This produces a first generation, high quality **hologram**, but is expensive and requires large lasers.

Generally, **holograms** recorded in materials such as silver halide/gelatin emulsions, dichromated gelatin, or photopolymer are subject the invention to provide a **surface hologram** suitable for direct **replication** by embossing or the like.

It is another object of the invention to provide an amplitude **hologram** free of Bragg effects.

It is another object of the invention to provide a **surface** having a relatively high sensitivity over a broad band for forming a microscopic pattern.

28/5/18 (Item 1 from file: 60)

DIALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rights reserved.

0001412389 IP ACCESSION NO: 20081054130

Multiple format holographic CHMSLS

Weede, John E; Virgadamo, Michael J; Upper, Richard B; Smith, Ronald T

, USA

PUBLISHER URL:

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netacgi/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5495227.PN.&OS=pn/5495227&RS=PN/5495227>

DOCUMENT TYPE: Patent

RECORD TYPE: Abstract

LANGUAGE: English

FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

A **hologram** structure for use in a **holographic** center high mounted spotlight system for a vehicle. The **hologram** structure includes first and second **hologram layers** laminarily **secured** to each other, each having a plurality of **holographic** lenses formed therein, each **holographic** lens being configured to **diffract light** into a predetermined solid angular region.

DESCRIPTORS: **Holography** ; **Holograms** ; Lenses; Diffraction; Hughes  
aircraft; Vehicles

28/5/19 (Item 2 from file: 60)

DIALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rights reserved.

0001159671 IP ACCESSION NO: 20080861496

Holograms for security markings

Pizzanelli, David J

, USA

PUBLISHER URL:

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netacgi/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5623347.PN.&OS=pn/5623347&RS=PN/5623347>

DOCUMENT TYPE: Patent

RECORD TYPE: Abstract

LANGUAGE: English

FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

A **hologram** for **security** markings is provided by a laser transmission **hologram** (1-4) formed as a **surface relief** pattern and a coating of a thin metallic **layer** (5) on the **surface relief** pattern whereby the **hologram** is capable of reflecting light from a laser (10). The metallic **layer** is, preferably, about 500 angstroms thick and the **hologram** may be mounted on a **substrate** (7) of an item required to bear the **security** marking defined by the **hologram**. In a feature of the invention an apparatus is provided for reading light reflected from the **hologram** comprising a laser (10) for projecting a beam (9) onto the **hologram** to be read and a detector (31) and associated logic devices for recognizing a real image of the **hologram**. The apparatus has the advantage that the laser (10) and detector (31) are both located on the same side of the **hologram** to be read.

DESCRIPTORS: **Holography** ; **Holograms** ; Lasers; **Security** ; Light (visible radiation); Detectors; Images; Beams (radiation); Inventions; Thin films; Bears; Coating; Product life cycle

28/5/20 (Item 3 from file: 60)  
DI ALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rts. reserv.

0001039260 IP ACCESSION NO: 2008718703  
Holographic security device

Drinkwater, Kenneth John; Holmes, Brian William  
, USA

PUBLISHER URL:  
<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netacgi/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5694229.PN.&OS=pn/5694229&RS=PN/5694229>

DOCUMENT TYPE: Patent  
RECORD TYPE: Abstract  
LANGUAGE: English  
FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

A **holographic** effect is generated on a **holographic security** device by **diffraction** of light by a **surface relief** pattern on a film. When illuminated, a moire pattern is generated from a pair of overlapping, regular arrays of lines or dots. Each array has a line of symmetry. The lines of symmetry are aligned. The device exhibits an ordered variation in the form of observed moire patterns in a direction parallel with the alignment direction of the lines of symmetry and a color variation but substantially no form variation transverse to alignment direction.

DESCRIPTORS: Symmetry; Arrays; Moire patterns; **Security**; Diffraction patterns; Color; Alignment

28/5/21 (Item 4 from file: 60)  
DI ALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rts. reserv.

0001039254 IP ACCESSION NO: 2008685162  
Holographic information display for exterior vehicle application

Smith, Ronald T; Pyburn, Robert Allan  
, USA

PUBLISHER URL:  
<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netacgi/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5724161.PN.&OS=pn/5724161&RS=PN/5724161>

DOCUMENT TYPE: Patent  
RECORD TYPE: Abstract  
LANGUAGE: English  
FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

Apparatus comprising a decal disposed on an interior **surface** of a window and a light source for projecting light onto the to display an image outside of the vehicle. The decal comprises a protective **layer** having a **hologram layer** disposed thereon that is designed to transmit a **holographic** image in a predetermined viewing direction. An opaque and clear mask **layer** into which an icon is incorporated may be **secured** to the **hologram layer** to provide a two-dimensional image. The **hologram layer** is illuminated by sunlight, skylight, or a light source and projects an image to a viewer at a predefined direction. During the day, the icon is viewable because light transmits through the clear portions of the mask **layer** is clear, and is blocked by opaque portions of the mask **layer** that define the icon. At night, the decal is illuminated by light from a light source 18, or an exterior or ambient light source to produce an image viewable by the observer. The decal may be designed to direct **diffracted light** to specific areas where viewability is desired, thereby creating

images that are brighter to observers than may normally be achieved.

DESCRIPTORS: Images; **Holography**; Light sources; **Holograms**; Masks;  
Exteriors; Observers; Vehicles; Diffraction; Electronics; Blocking;  
Skylights; Sunlight; Viewing

**28/5/22 (Item 5 from file: 60)**

DIALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rights reserved.

0000973697 IP ACCESSION NO: 2008623208

**Semi-transparent reflective hologram and method of producing same**

Strahl, Guenter H; Bates, David H

, USA

PUBLISHER URL:

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netah/m/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5781316.PN.&OS=pn/5781316&RS=PN/5781316>

DOCUMENT TYPE: Patent

RECORD TYPE: Abstract

LANGUAGE: English

FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

A semi-transparent **holographic** transfer foil film for application to a **substrate** such as a **security** device. The film is comprised of a thermally stable carrier for supporting multiple **layers** of thermoplastic or thermoset coatings, wherein a heat sensitive release **layer** is applied to the carrier to enable separation of the carrier from the multiple **layers** of coatings under appropriate circumstances. A wear-resistant transparent top coat is applied over the release **layer** to act as an outer **surface** for the **holographic** film the top coat may be treated or cured so as to increase its tenacity. An embossable coating is applied over the top coat, and is adapted to retain the impression of a **holographically** embossed image. A semi-transparent reflective **layer** of zinc sulfide is applied over the embossable coating for reflecting the **holographically** embossed image while at the same time enabling indicia found on a **substrate** or document to which the film will be applied to be viewed. A **surface relief** pattern is impressed within the reflective **layer** and the embossable coating to form the **holographically** embossed image or diffraction pattern. An adhesive coating and tie coat are applied over the other coatings for adhering the semi-transparent **holographic** film to the **substrate**.

DESCRIPTORS: Coatings; Images; Embossing; Coating; Carriers; Foils;  
**Holography**; **Holograms**; **Security**; Protective coatings; Wear  
resistance; Diffraction patterns; Separation; Thermoplastic resins;  
Thermosetting resins; Heat sensitive; Tensile strength; Prints; Adhesives  
; Thermal stability; Zinc sulfides

**28/5/23 (Item 6 from file: 60)**

DIALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rights reserved.

0000964625 IP ACCESSION NO: 2008500904

**Security document and method of producing it**

Kaule, Wittich; Grauvogl, Gregor

, USA

PUBLISHER URL:

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netah/m/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5820971.PN.&OS=pn/5820971&RS=PN/5820971>

DOCUMENT TYPE: Patent

RECORD TYPE: Abstract

LANGUAGE: English  
FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

A **security** document such as a bank note, identity **card** or the like, includes at least one multilayer **security** element made of at least two **layers** of reaction lacquer or adhesive between which diffraction structures, in particular **holographic** structures, exist in the form of a **relief**. A reflective **layer** is additionally disposed between the **layers** of lacquer. The reaction lacquer or adhesive is the type curable or cross-linkable under physical (e.g. radiation) and/or chemical activation.

DESCRIPTORS: Lacquers; **Security**; Adhesives; Multilayers; Identity **cards**  
; Diffraction; Activation; Banks; Crosslinking

**28/5/24 (Item 7 from file: 60)**  
DIALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rights reserved.

0000949863 IP ACCESSION NO: 2008617822  
**Pattern metallized optical varying security devices**

Walters, Glenn J; McCormick, John A

, USA  
PUBLISHER URL:  
<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netacgi/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5786910.PN.&OS=PN/5786910&RS=PN/5786910>

DOCUMENT TYPE: Patent  
RECORD TYPE: Abstract  
LANGUAGE: English  
FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

**Security** devices which are difficult to reproduce include a grid screen metallization pattern. The grid screen metallization pattern may be laid down over a **hologram** or diffraction grating formed as a **surface relief** pattern on a **substrate**, to form a visually identifiable, semi-transparent **security** device. Additionally, the metallization pattern may include resonant structures in which information about the **security** device is encoded. In some embodiments of these **security** devices, the metallization pattern is disposed in accurate registration with the underlying **hologram** or diffraction grating. These **security** devices are made by methods which include printing an oil pattern on the **substrate**. Areas on which oil is deposited do not receive metal during a metallization step. Since these methods do not use caustics, metallization patterns including features which would otherwise trap and hold caustics are possible.

DESCRIPTORS: Metallizing; Computer information **security**; **Holography**;  
Diffraction gratings; Deposition; **Holograms**; **Security**; Caustics;  
Alkalies; Screens; Printing

**28/5/25 (Item 8 from file: 60)**  
DIALOG(R) File 60: ANTE: Abstracts in New Tech & Engineer  
(c) 2008 CSA. All rights reserved.

0000910472 IP ACCESSION NO: 2008515965  
**Information-recorded media and methods for reading the information**

Tahara, Shigehiko; Kurokawa, Shinichi; Takahashi, Norio; Horiguchi, Ryuji;  
Sakai, Mrito; Hayakawa, Akira; Komaki, Shinpei

, USA  
PUBLISHER URL:  
<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netacgi/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=5856048.PN.&OS=PN/5856048&RS=PN/5856048>



<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=/netacgi/PTO/search-adv.htm&r=1&p=1&f=G&l=50&d=PTXT&S1=6165592.PN.&OS=pn/6165592&RS=PN/6165592>

DOCUMENT TYPE: Patent

RECORD TYPE: Abstract

LANGUAGE: English

FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering

ABSTRACT:

A document, for example a bank note, a check, a credit **card**, an identification document or a ticket, bears an optical safety mark in the form of a **light**-reflecting and **light**-**diffracting** and/or refracting **layer**, for example a **hologram**, an interference **layer**, a (computer-generated) refracting structure, located on at least parts of the document. The optical safety mark is arranged in a sandwich structure which is fixed to the document by means of an adhesive **layer** and if required has one or several transparent **layers** arranged in the sandwich structure. The adhesive **layer** and/or transparent **layer** in the sandwich structure is doped with at least one luminescent substance.

DESCRIPTORS: Sandwich structures; Positioning; Adhesives; **Holography**; Safety; **Holograms**; Computer information **security**; Bears; Banks; Interference; Tickets